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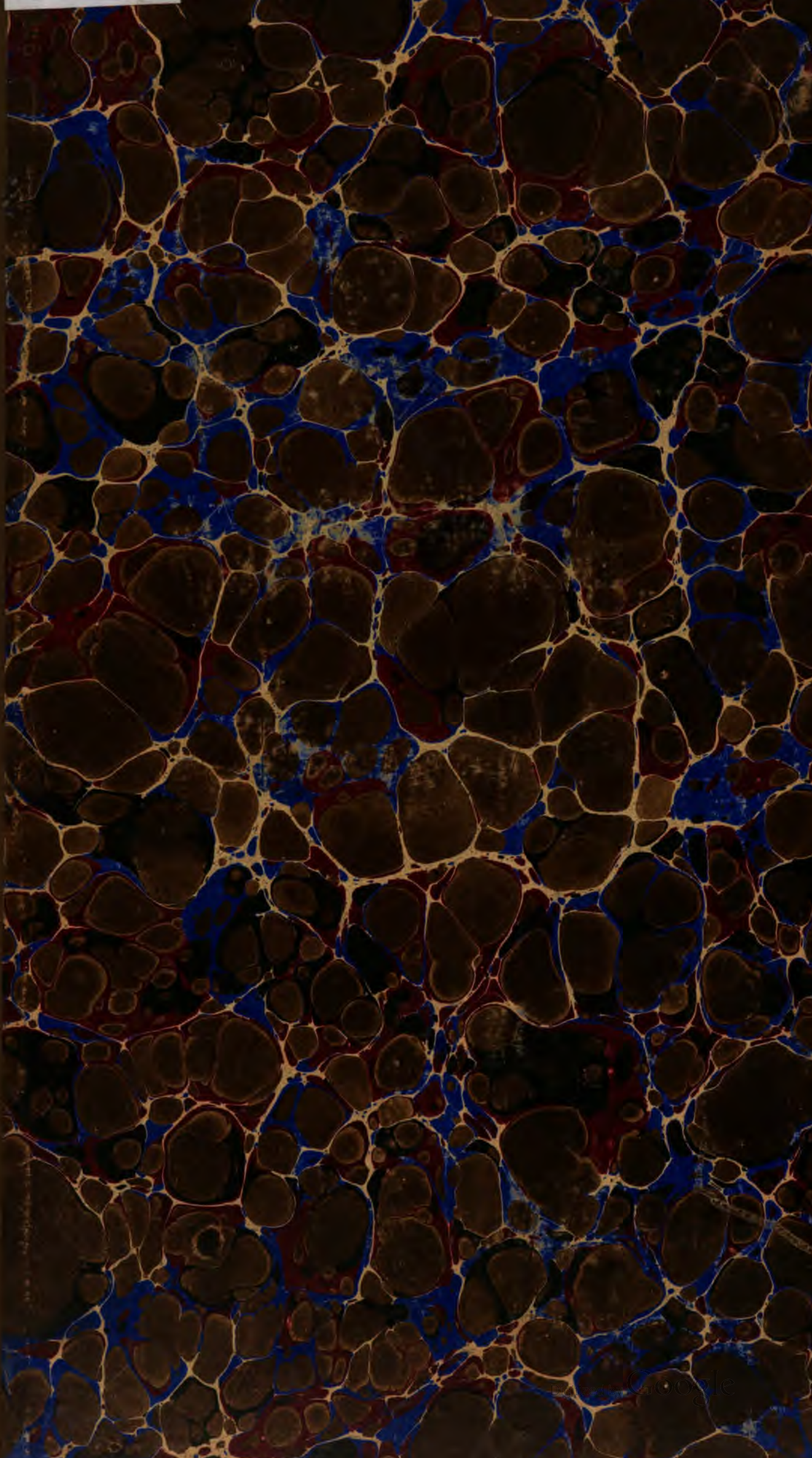

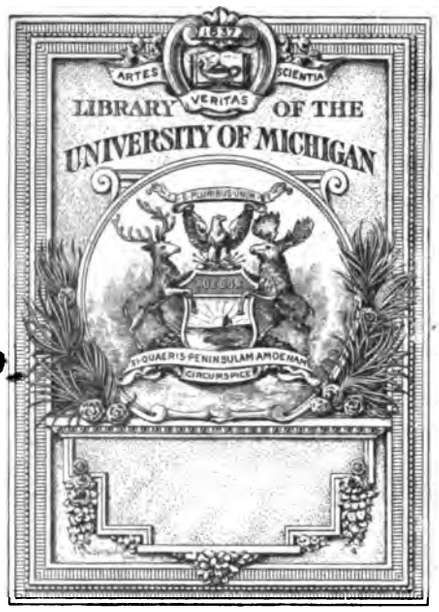

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TWENTY-EIGHT VOLUMES.

—(2.)—

FACTORIES AND WORKSHOPS;
FACTORIES AND WORKSHOPS (LEAD COMPOUNDS);
INEBRIATES.

Session

23 *January* 1901 —— 17 *August* 1901.

VOL. X.

1901.

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CONTENTS.

	PAGE.
GENERAL REPORT UPON THE WORK OF THE FACTORY DEPARTMENT IN 1900:	3
APPENDIX 1.—Orders of the Secretary of State	25
„ 2.—Appeal Cases	29
„ 3.—Penal Compensation Cases	42
„ 4.—Overtime	46
„ 5.—Outwork	52
„ 6.—Separate Departments	54
„ 7.—Earthenware and China	55
„ 8.—Bottling of Aërated Waters	72
„ 9.—Wall-papers	83
„ 10.—Accidents in Building Construction and Repair	97
„ 11.—Creameries in Ireland	102
„ 12.—Fencing of New Machinery	107
„ 13.—Accidents in Docks	111
„ 14.—Tin-plate Works	112
„ 15.—Horsehair Manufacture	113
„ 16.—Hatters' Furriers	115
„ 17.—Industrial Lead Poisoning	119
„ 18.—Mechanical Ventilation	121
„ 19.—Table of Accidents due to Locomotives	124
„ 20.— „ „ Shuttles	136
„ 21.— „ „ Electric Shock	140
„ 22.— „ „ Grindstones	142
SECTIONAL REPORTS:	
Superintending Inspector of the Southern Division	154
„ „ „ Midland Division	193
„ „ „ North-Eastern Division	251
„ „ „ North-Western Division	278
„ „ „ Scotland and Ireland Division	316
Principal Lady Inspector	347
Examiner of Particulars	406
Inspector under the Cotton Cloth Factories Acts	415
Engineering Adviser	427
Medical Inspector	431
TABLES:	
1.—Inspectors and Assistants	507
2.—Districts and Staff	511
3.—Laundries, Docks, Warehouses, Non-Textile Particulars	519
4.—Certifying Surgeons; Examinations of Children and Young Persons	520
5.— „ „ Examinations under Special Rules	521
6.—Factories and Workshops under Special Rules	522
7.—Notices received by H.M. Inspectors	524
8.—Factory Overtime Reports	530
9.—Workshop Overtime Reports	534
10.—Accidents 1900; *Degree of Injury, Age*	536
11.— „ „ „ *Industry*	537
12.— „ *Age, Sex, Industry*	538
13.— „ *Causation, Industry*	540
14.— „ 1898–1900; *Distinguishing Industry and those reported to* (1) *Certifying Surgeon*; (2) *Inspectors only.*	542
15.—Accidents 1900; *Degree of Injury, District*	543
16.— „ *Industry, District*	544
17.— „ *Causation, District*	546
18.— „ *Age and Sex, District*	548
19.—Representations to Local Authorities	549
20.—Lead, Mercury, Phosphorous, and Arsenic Poisoning and Anthrax	550
21.—Prosecutions; *Offence and Penalty*	552
22.— „ *Industry and Nature of Offence*	562
23.— „ „ „ „ (*Summary*)	564
24.— „ *District and Nature of Offence*	566
25.— „ „ „ „ (*Summary*)	568
26.— „ *in Detail*	570

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ANNUAL REPORT OF THE CHIEF INSPECTOR OF FACTORIES AND WORKSHOPS.

TO THE RIGHT HONOURABLE CHARLES THOMSON RITCHIE, M.P., HIS MAJESTY'S PRINCIPAL SECRETARY OF STATE FOR THE HOME DEPARTMENT.

SIR,

June, 1901.

I HAVE the honour to submit the following Report upon the work of the Factory Department of the Home Office during the year 1900. In the main the arrangement is the same as that which was adopted last year, the detailed sectional reports being preceded by observations relating to the Department as a whole, and followed by full statistical and other tables.

Places under inspecton.

The number of factories on the district registers increased by 4,093 to 95,664, and workshops by 3,463 to 137,648. These figures included laundries, of which 237 with power were added in 1900, while those without power decreased by 536, making totals of 1,804 and 4,972 respectively. There were also added, under Section 23, 1895, the names of 104 occupiers of docks, wharves, and quays, and 78 warehouses, raising the totals to 2,097 and 3,907. For "men-workshops" and the "buildings" and other places brought under the Acts for certain purposes by Section 23 (2), 1895, no figures can be given.

At the end of the year, the number of places marked for additional inspection under Special Rules, was 7,529, under the Particulars Section, 10,223 (7,310 textile, 2,914 non-textile), and under the Cotton Cloth Factories Acts, 1,214.

Reports were received of 50,549 outworkers. No precise return can be made at present of the large numbers of factories and workshops under special exceptions and restrictions.

Notices &c.

The total number of statutory notices and returns, from occupiers and others, reached 305,794.

Accidents.

Comparing the records of 1900 with those of 1899 there was further increase in the number of reported accidents.

Those reported to the Certifying Surgeon were 27,704 in 1900, an advance of 4,933, or 21·7 per cent. upon the corresponding total for the previous year. The increase was shared by men, women, and young persons, but very unequally, and as in other recent years the rate of increase was greatest among adults and males.

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Accidents Reported to Certifying Surgeons, 1899-1900.

Age and Sex. (1)	1899. (2)	1900. (3)	Increase or Decrease. Number. (4)	Increase or Decrease. Per cent. (5)
Males	19,616	24,411	+ 4,795	+ 24·5
Females	3,155	3,293	+ 138	+ 4·4
Total	**22,771**	**27,704**	**+ 4,933**	**+ 21·7**
Adults	15,895	19,893	+ 3,998	+ 25·2
Young persons	6,639	7,602	+ 963	+ 14·5
Children	237	209	— 28	— 11·8

The fatal accidents, included in the above, increased 20 per cent., from 871 in 1899 to 1,045 in 1900; and as shown in the table below, there was more or less advance in the numbers recorded under each of the degrees of injury adopted for statistical purposes.

Accidents Reported to Certifying Surgeons.—Degree of Injury.

Degree of Injury. (1)	1899. (2)	1900. (3)	Increase or Decrease. Number. (4)	Increase or Decrease. Per cent. (5)
Causing Death	871	1,045	+ 174	+ 20·0
Loss of hand or arm	150	163	+ 13	+ 8·7
Loss of part of hand	2,521	2,701	+ 180	+ 7·1
Loss of part of leg or foot	93	94	+ 1	+ 1·1
Fracture	1,202	1,371	+ 169	+ 14·0
Loss of sight...	47	63	+ 16	+ 34·0
Injuries to head or face	1,627	1,965	+ 338	+ 20·8
Burns and scalds	2,706	3,460	+ 754	+ 27·9
Other injuries	13,554	16,842	+ 3,288	+ 24·3
Total	**22,771**	**27,704**	**+ 4,933**	**+ 21·7**
Accidents reported to Inspectors only	**47,989**	**51,316**	**+ 3,327**	**+ 6·9**
All reported accidents	**70,760**	**79,020**	**+ 8,260**	**+ 11·7**

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Minor accidents, reported to the Inspector only, were more numerous in 1900 than in 1899, but the addition of 3,327 casualties under this head represents a relatively smaller advance than in the other class ; the percentage mean being 6·9. The net result of an increase of 21·7 per cent. in the first class of accidents, and 6·9 per cent. in the second, is an increase of 11·7 per cent. in reported accidents as a whole ; the corresponding figures recorded in the last Annual Report being 18·4, 25·2, and 22·9 respectively.

Both textile and non-textile manufactures contributed to the increase. Among the former, cotton is the principal head, but the comparatively small figures for flax, hemp, and jute, compare more unfavourably with those of 1899. Among the latter the increase was mainly due to the founding and conversion of metals.

Accidents in Different Branches of Manufacture.

Industry.	Accidents reportable to Certifying Surgeons as well as Inspectors.								Minor Accidents reportable to Inspectors only.			
	Fatal.				Non-Fatal.							
	1899.	1900.	Increase or Decrease.		1899.	1900.	Increase or Decrease.		1899.	1900.	Increase or Decrease.	
			Number.	Per cent.			Number.	Per cent.			Number.	Per cent.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Textile :	52	70	+ 18	+ 34·6	4,332	4,647	+ 315	+ 7·3	1,719	1,960	+ 241	+ 14·0
Cotton	24	41	+ 17	+ 70·8	2,583	2,648	+ 65	+ 2·5	1,140	1,250	+ 110	+ 9·6
Wool, Worsted, Shoddy ..	21	18	- 3	- 14·3	1,115	1,146	+ 31	+ 2·8	383	381	- 2	- 0·5
Flax, Hemp, Jute	3	9	+ 6	+ 200·0	473	676	+ 203	+ 42·9	136	253	+ 117	+ 86·0
Silk, Lace, Hosiery ..	4	2	- 2	- 50·0	149	169	+ 20	+ 13·4	51	65	+ 14	+ 27·5
Other Textile	—	—	—	—	12	8	- 4	- 33·3	9	11	+ 2	+ 22·2
Non-Textile :	819	975	+ 156	+ 19·0	17,568	22,012	+ 4,444	+ 25·3	46,270	49,356	+ 3,086	+ 6·7
Metals (Founding and Conversion).	74	151	+ 57	+ 77·0	2,209	3,866	+ 1,657	+ 75·0	4,668	6,526	+ 1,858	+ 39·8
Shipbuilding	108	74	- 34	- 31·5	787	973	+ 186	+ 23·6	8,495	8,026	- 469	- 5·5
Making of Machines, Engines, &c.	162	158	- 4	- 2·5	6,929	7,076	+ 147	+ 2·1	16,554	15,913	- 641	- 3·9
Chemicals	36	37	+ 1	+ 2·8	466	513	+ 47	+ 10·1	1,259	1,351	+ 92	+ 7·3
Docks, Wharves, Quays ..	115	132	+ 17	+ 14·8	602	825	+ 223	+ 37·0	3,989	3,615	- 374	- 9·4
Warehouses	21	30	+ 9	+ 42·9	206	276	+ 70	+ 34·0	3,307	3,442	+ 135	+ 4·1
Other Non-Textile ..	303	413	+ 110	+ 36·3	6,369	8,483	+ 5,114	+ 33·2	7,998	10,483	+ 2,485	+ 31·1
Total—Textile and Non-Textile.	871	1045	+ 174	+ 20·0	21,900	26,659	+ 4,759	+ 21·7	47,989	51,316	+ 3,327	+ 6·9

It should be noted, however, that the value of the comparison of the figures of 1900 with those for 1899 is impaired (more especially as regards the headings "Wood," "Extraction" and "Founding of Metals," "Machines, &c.," and "Shipbuilding") by the stricter classification now made according to the precise branch of work in which the injured

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person was employed rather than the principal business of the factory. Thus an iron foundry in a railway carriage or engineering factory is distinguished from other parts of such works; smelting carried on in conjunction with founding is separated from the latter in the statistics; and a saw mill in a shipbuilding yard is classified under "Wood."

Among the causes of accident, hoists, lifting tackle, circular saws, hand-machinery, escape of gas, steam, or metal, and, upon a smaller scale, electric shock, have a much worse record in 1900 than in 1899. The only conspicious instance of decrease is under the heading of hot liquid and molten metal (in vat or pan), and this may be due to the more systematic inclusion of ladle accidents among the class "escape of metal," rather than the former class, now that the tabulation is carried out upon uniform lines at the central office.

Accidents from Certain Causes, 1899-1900.

Cause.	Fatal.				Non-fatal.			
	1899.	1900.	Increase or Decrease.		1899.	1900.	Increase or Decrease.	
			Number.	Per cent.			Number.	Per cent.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Machinery moved by power	301	373	+ 72	+ 23·9	19,321	23,035	+ 3,714	+ 19·2
Hoists	27	41	+ 14	+ 51·9	315	597	+ 282	+ 89·5
Shuttles...	1	—	— 1	— 100·0	161	165	+ 4	+ 2·5
Lifting tackle	66	82	+ 16	+ 24·2	1,479	1,914	+ 435	+ 29·4
Grindstones	4	2	— 2	— 50·0	423	449	+ 26	+ 6·1
Circular saws	9	11	+ 2	+ 22·2	1,280	1,686	+ 406	+ 31·7
Other	194	237	+ 43	+ 22·2	15,663	18,224	+ 2,561	+ 16·4
Machinery not moved by power	7	12	+ 5	+ 71·4	1,363	1,659	+ 296	+ 21·7
Hot liquid, molten metal, &c.	26	18	— 8	— 30·8	1,004	337	— 667	— 66·4
Explosion	54	26	— 28	— 51·9	619	801	+ 182	+ 29·4
Electric shock	2	3	+ 1	+ 50·0	7	36	+ 29	+ 414·3
Escape of gas, steam, or metal	13	27	+ 14	+ 107·7	956	2,486	+ 1,530	+ 160·0
Falls	293	310	+ 17	+ 5·8	10,584	11,398	+ 814	+ 7·7
Other causes...	175	276	+ 101	+ 57·7	36,035	38,223	+ 2,188	+ 6·1
Total	871	1,045	+ 174	+ 20·0	69,889	77,975	+ 8,086	+ 11·6

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Other particulars as to causation of accidents are given in the following table, in which fracture of grindstones is added to the causes specified in the corresponding return on p. 6 of the last Annual Report.

Reported Accidents due to Certain Causes, 1900.

District.	Due to Shunting, Coupling, or other Cause connected with Locomotives or other moving Railway Plant.		Grindstones (with fracture of stones).		Cleaning Machinery in Motion.		Lathes.		Power Presses.	
	Fatal.	Non-Fatal.	Fatal.	Non-Fatal.	Fatal.	Non-Fatal.	Fatal.	Non-Fatal.	Fatal.	Non-Fatal.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. North London	—	12	—	—	—	17	—	24	—	15
2. South London	—	29	—	—	—	22	—	126	—	47
3. West London	1	7	—	—	—	4	—	13	—	9
3a. Area assigned to Miss Deane	—	—	—	—	—	1	—	—	—	—
4. East London	2	39	—	1	—	11	—	21	—	37
5. Kent	1	12	—	—	—	26	—	40	—	11
6. Southampton	1	29	—	2	1	31	—	15	—	29
7. Plymouth	4	18	—	—	—	5	—	27	—	—
8. Bristol	—	16	—	—	—	19	—	16	—	10
9. Northampton	—	37	—	—	—	5	—	8	—	75
10. Norwich	—	10	—	—	—	1	—	24	—	39
11. Birmingham	5	7	1	1	—	19	—	165	—	28
12. Worcester	1	2	—	—	—	1	—	8	—	37
13. Wolverhampton	6	26	—	—	—	4	—	98	—	103
14. South Staffordshire	—	2	—	—	—	11	—	43	—	37
15. North Staffordshire	3	9	—	—	—	4	—	20	—	8
16. Leicester	1	21	—	1	—	23	—	25	—	71
17. Nottingham	1	11	—	—	—	10	—	15	—	28
18. Derby	4	20	—	1	—	27	—	28	—	8
19. Lincoln	3	—	—	—	—	1	—	21	—	2
20. South Wales and Monmouthshire.	12	101	—	—	—	17	—	27	—	6
21. North Wales	2	10	—	—		4	—	3	—	10
22. Leeds	2	11	—	—	—	9	—	76	—	11
23. Sheffield	1	14	1	15	1	32	—	69	—	36
24. Huddersfield	2	6	—	1	—	46	—	31	—	5
25. Halifax	—	2	—	—	1	34	—	34	—	5
26. Bradford	—	31	—	1	1	120	1	30	1	6
27. Newcastle	20	134	—	2	—	57	—	134	—	187
28. Manchester	3	28	—	5	—	93	—	178	—	30
29. Oldham	—	1	—	—	—	252	—	113	—	4
30. Rochdale	—	—	—	1	—	162	—	52	—	15
31. Bolton	1	5	—	3	1	163	—	78	—	7
32. Cheshire	—	10	—	—	—	65	—	62	—	11
33. Liverpool	1	7	—	—	—	14	—	11	—	51
34. Blackburn	—	1	—	—	—	85	—	12	—	14
35. Preston	1	34	—	—	—	67	—	47	—	21
36. West Scotland	10	83	—	2	—	65	—	114	—	33
37. South West Scotland	2	3	—	—	—	6	—	7	—	1
38. South East Scotland	2	4	—	—	—	16	—	12	—	10
39. East Scotland	—	3	—	—	1	44	—	14	—	4
40. North Scotland	—	—	—	—	—	12	—	8	—	11
41. North Ireland	—	3	—	—	—	21	—	7	—	4
42. South Ireland	—	—	—	—	—	4	—	8	—	3
Total	92	798	2	36	6	1630	1	1864	1	1127

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The monthly fluctuations in the number of reported accidents, as shown in the following Table and Chart, do not differ materially from those observed in the previous year.

Monthly Totals of Reported Accidents, 1897 to 1900 (*see Plate*).

Accidents.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
All notified to Inspectors. In 1900	5,608	6,000	6,995	5,752	7,176	5,839	6,622	6,122	6,856	7,421	7,755	6,884	79,030
In 1899	5,243	5,796	6,382	5,218	5,817	6,123	5,464	5,564	5,973	6,459	6,850	5,871	70,760
In 1898	3,341	3,819	4,339	3,840	4,280	4,052	4,851	4,965	5,799	5,964	6,183	6,129	57,562
In 1897	3,173	3,020	3,253	3,385	3,536	3,263	3,231	3,045	3,557	3,524	3,712	3,575	40,474
Total ..	17,365	18,635	20,969	18,095	20,809	19,267	20,168	19,696	22,185	23,368	24,500	22,759	247,316
Monthly percentage (after correction for inequality in number of days), 1897 to 1900	82·5	98·0	99·6	88·8	98·9	94·6	95·8	93·6	108·9	111·0	120·3	108·1	—
Notified to Certifying Surgeons as well as Inspectors. In 1900	1,750	2,116	2,469	2,129	2,605	2,074	2,402	2,047	2,504	2,551	2,695	2,362	27,704
In 1899	1,558	1,818	1,888	1,741	2,012	1,909	1,872	1,677	1,890	2,186	2,209	2,011	22,771
In 1898	1,207	1,391	1,509	1,308	1,479	1,396	1,596	1,675	1,745	1,900	2,100	1,921	19,227
In 1897	1,245	1,295	1,413	1,166	1,397	1,206	1,347	1,219	1,312	1,382	1,498	1,507	15,967
Total ..	5,760	6,620	7,279	6,344	7,493	6,585	7,721	6,618	7,451	8,019	8,502	7,801	85,669
Monthly percentage (after correction for inequality in number of days), 1897 to 1900	79·1	100·7	100·0	90·1	102·9	93·5	99·2	90·9	105·8	110·1	120·6	107·1	—

In the sectional reports which follow, the causation of accidents, the reasons for the continued increase in the numbers reported, and the means of prevention, by fencing of machinery and otherwise, are fully discussed.

The usual statistical tables of accidents are appended (Tables 10 to 18), and are supplemented by new summaries for each of the forty-two districts into which the United Kingdom is divided for administrative purposes.

An attempt has been made to throw further light upon the precise points of danger by tabulating in some detail the particulars of certain groups of reported accidents. For this purpose the following selection was made :—

Causation.	Period (1900).	No. of Accidents.	Reference to Lists.
Explosion in Aerated Water Factories	Whole year	159	Appendix 8.
Use of Locomotives	Second half of year ...	179	„ 19.
Flying Shuttles	„ „ ...	69	„ 20.
Grindstones	„ „ ...	238	„ 22.
Electric Shock	„ „ ...	26	„ 21.

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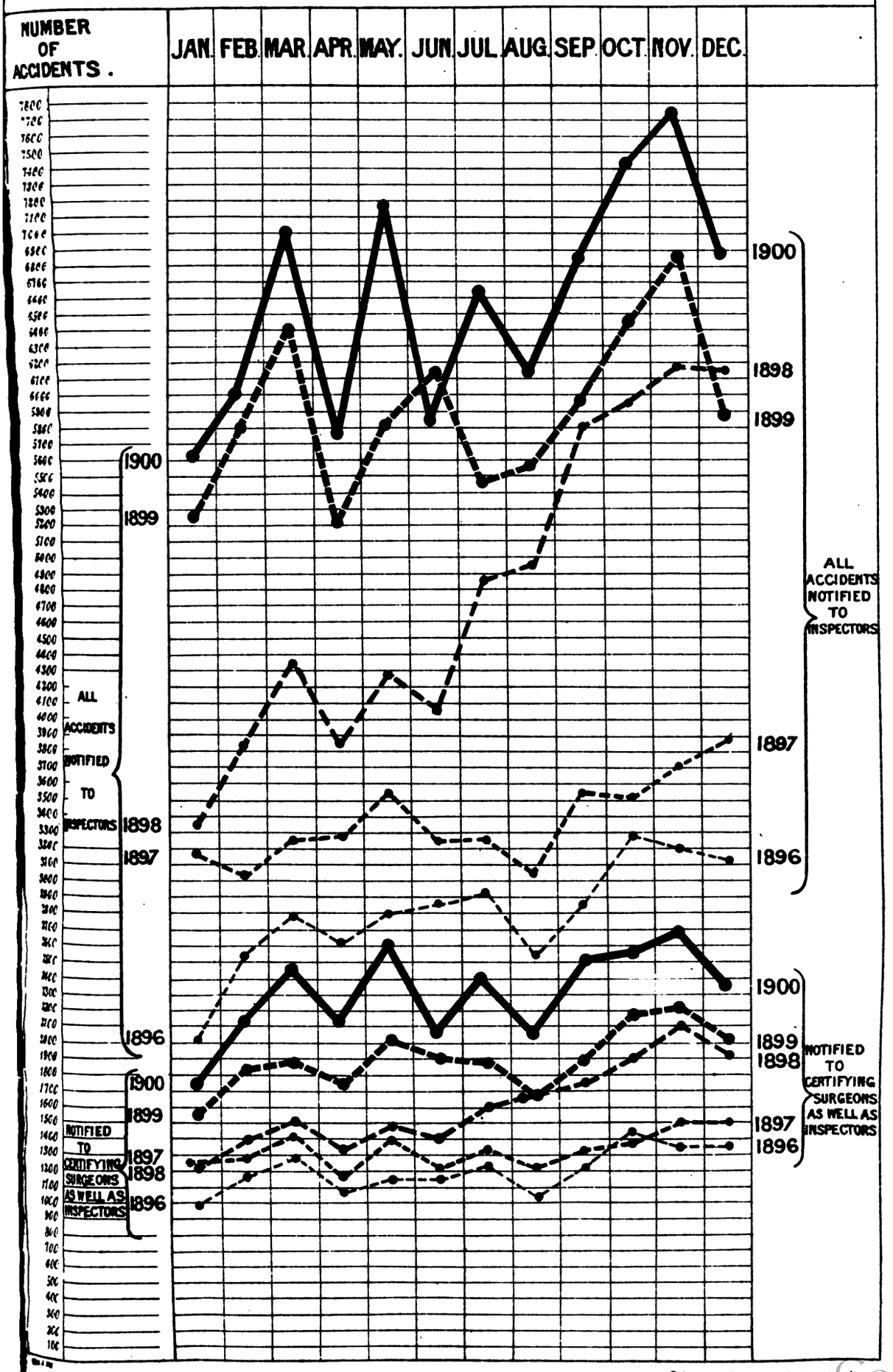
ACCIDENTS REPORTED UNDER THE FACTORY ACTS.

UNITED KINGDOM: 1896 TO 1900.

THE CHART IS BASED UPON THE TOTAL NUMBER OF ACCIDENTS REPORTED IN EACH CALENDAR MONTH.



L.W. Thomas.

E. Weller & Grahams Lth. Litho London.

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An analysis of 2,389 accidents due to cotton machinery forms part of the Report of the Superintending Inspector for the North-Western Division.

Industrial poisoning.

The notified cases of industrial poisoning are summarised in Table 20, and discussed in detail in the Report of the Medical Inspector.

Lead.

Lead-poisoning underwent further decrease, from 1,258 cases in 1899 to 1,058 in 1900. There was increase under some of the smaller heads, but this was outweighed by the marked reduction in connection with pottery (249 to 200), white lead (399 to 358), and other branches of manufacture in which danger of plumbism chiefly arises. Some allowance has to be made for the doubtfully reportable cases among plumbers and house painters (*see* Appendix 16) to which Dr. Legge refers. He has further analysed the statistics for each industry in terms of character and severity of symptoms, and has arrived at certain interesting conclusions of practical importance. In connection with china and earthenware details are given as to ware and process. Dr. Legge has also given special attention to the effects of the use of lead chromate in yarn-dyeing and calico works, and in boot-finishing.

Arsenic.

There were 22 reported cases of arsenic poisoning, 20 of which occurred in three factories; 13, of which 3 were fatal, were due to inhalation of arseniuretted hydrogen. None were reported in 1899 or 1898.

Mercury and phosphorus.

Nine cases of mercury poisoning, and three of phosphorus poisoning, were notified in 1900. Under both heads the numbers are less than those of the previous year, which were 10 and 8 respectively.

Anthrax.

The reported cases of anthrax, which had risen from 28 in 1898 to 55 in 1899, fell to 37 in 1900; and the decrease extended to each of the three principal classes of manufacture concerned, namely, wool, horsehair, and hides and skins.

Medical examination: Of work-people. By the Medical Inspector.

An important feature in the work of the year is the systematic examination which the Medical Inspector has been able to make of the persons engaged, at many representative works, in processes which involve special danger to health. In his Report will be found an account of such investigation in the case of lead-smelting, yarn-dyeing and calico-printing, making of mercurial preparations, making of electrical meters, hatters' furriers, paint and colour works, and ganister works.

By Certifying Surgeons under Special Rules.

Under amended instructions, the Certifying Surgeons' Annual Reports for 1900 include, for the first time, returns of the periodical medical examinations required by Special Rules in the case of workpeople engaged in certain dangerous occupations. Some particulars are given in Table 5. In all there were 353 formal and 22 informal suspensions, as the result of over 38,000 examinations; and in 71 instances the persons suspended were subsequently certified as fit to return to work. It is to be noted that these records do not include the similar examinations made by appointed surgeons, other than certifying surgeons, under certain Special Rules.

Under voluntary regulations

Apart from Special Rules, many employers have been induced to adopt voluntary regulations for the protection of workpeople, including periodical medical examination. Examples are given by the Medical Inspector as regards lead smelting, hatters' furriers, and the making of electrical meters and mercurial preparations. In the manufacture of wall-papers the same steps were taken as in the case of basic-slag works and Bessemer convertors, to which reference was made in the last Annual Report. Commander Smith visited the factories in question, and met the employers in conference; and ultimately Regulations embodying (with some modifications) the recommendations of the Committee were adopted. Particulars are given in Appendix 9.

Circulars.

In accordance with the practice adopted in recent years, further efforts have been made to enlist the co-operation of employers and workpeople in necessary measures of precaution, by bringing the essential points directly to their knowledge in printed form. This has been attempted in different ways. Apart from the Special Rules and voluntary Regulations, to which further reference will presently be made, circular letters and copies of departmental reports bearing upon particular industries have been addressed to the occupiers concerned; and similar information has been given to Coroners and Accident Insurance Companies, in matters in which their influence is likely to be felt.

Fencing of new machinery.

Thus an appeal has been made to makers of machinery and other appliances as to the fencing of dangerous points in the process of construction and fitting. No small part of

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the heavy annual total of deaths and mutilations is due to neglect of the most elementary precautions in the case of new machinery and appliances, a subject to which repeated reference has been made in earlier Reports. Even apart from the danger of delay, safety can be secured more efficiently and more economically by due care in making and fitting, and the inattention to this obvious consideration on the part of makers and users of machinery is the more remarkable in view of what is being done, not only in other countries, but even in the case of machinery made in this country for export. The memorandum, of which a copy appears at page 107, was sent to the principal makers of machinery in the United Kingdom.

Docks. At page 74 of the last Annual Report was printed a Report upon Dock Accidents, by Mr. Maitland and Mr. Eraut. This was circulated among the occupiers, stevedores, and others concerned, with the covering letter reproduced at page 111. Many replies were received, and as some of them raised further questions of moment, Mr. Maitland and Mr. Eraut have been instructed to make further investigation and report.

Tin-plate works. In July, 1900, attention was directed to the unsatisfactory conditions prevailing in tin-plate works. A letter, reprinted at page 112, was sent to the occupiers of such works. Correspondence followed, and in the current year a conference has been held at Swansea between the manufactures and certain of the Inspectors. Further reference to this matter is made in the Report of the Principal Lady Inspector.

Metallochrome. In the final Report of the Committee on Dangerous Trades, of which Mr. H. J. Tennant, M.P., was chairman, reference was made to the use of metallochrome powder ("flake-white" or "snow-white") in lithographic works. Lists of some 150 works believed to be using this material were obtained from the District Inspectors, and a copy of the report was sent to each occupier in February, 1900. In 50 instances replies were received, but only two admitted any use of the substance in the dry state, which alone was in question. Systematic enquiry was then made by the Inspectors, who found the powder in use in 12 works only, and in some of them upon a very small scale. In these instances the recommendations of the committee were impressed upon the occupiers. It would seem that the conditions have materially improved, and that the powder is now much less used in the dry state.

Fur. In December, 1900, hatters' furriers received a circular (reprinted at page 115), explaining the dangers which attend the use of nitrate of mercury, and indicating in some detail the precautions which are necessary.

Horsehair. Dr. Legge's report contains an account of the efforts which are being made to control the risk of anthrax which arises in the manipulation of horsehair. A communication on the subject (*see* page 113) was addressed to the employers concerned.

It is proposed to adopt a similar course as regards the bottling of aërated waters (Appendix 8), and accidents in building construction (Appendix 10), special reference to which is made elsewhere in this Report.

Lead. In pursuance of a suggestion for which the Department is indebted to Mr. W. Burton, F.I.C., a leaflet dealing in simple terms with the causation and prevention of lead poisoning was drawn up by the Medical Inspector, and issued for distribution among workpeople engaged in processes involving exposure to lead.

Head-coverings. Miss Anderson has devised a model form of head-covering for women and girls engaged in dusty processes; and samples are supplied to employers on application.

Fans, &c., Committee. In July a small Departmental Committee, consisting of Dr. J. S. Haldane, F.R.S., and Mr. E. H. Osborn (Engineering Adviser in the Factory Department), with Mr. C. R. Pendock (H.M. Inspector of Factories) as Secretary, was appointed "to enquire into and report upon (*a*) the means of ventilation in factories and workshops, with especial reference to the use of fans; (*b*) the use and construction of respirators for the protection of workpeople exposed to dust or dangerous fumes." The objects of the reference were further explained in a memorandum which will be found at page 121. The Committee are still engaged in their enquiry, and no date can yet be fixed for their report.

Analyses. In connection with recent enquiries into dangerous trades, cases of industrial poisoning, and the administration of certain of the Special Rules, it has been necessary to seek the

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assistance of the Government Laboratory, and this has been freely given. Dr. Thorpe, F.R.S., the Principal Chemist, has also examined for solubility a large number of samples of glazes and fritts submitted by manufacturers of earthenware and china, and has been good enough to inform the Department of the results in 118 instances, in 1900 and the first four months of 1901. Some of these results are stated in one of his published Reports.* The Medical Inspector's Report contains particulars of some of the other samples forwarded to the Government Laboratory for analysis, and of the results. It also contains an account of other chemical investigations in connection with poisoning by arseniuretted hydrogen, and with dust and fumes from lead smelting; and of bacteriological and pathological researches in connection with anthrax (in horsehair, and in hides and skins) and with the handling of ganister and allied materials.

Chemical examinations of a different kind, namely, the analysis of samples of air taken from humidified textile factories, form an important part of the work of the Inspector under the Cotton Cloth Factories Acts; and the results are given in Mr. Williams' Report.

As regards means of escape in case of fire the changes in the district boundaries, and the consequent revision of registers, prevent any close comparison of the figures for 1899 and 1900, but from the latest returns it appears that the number of factories and workshops in which the means of escape in case of fire have been noted as satisfactory is 194,404, while 2,346 are considered unsatisfactory, if not actually dangerous, in this respect. The corresponding totals for the previous year were 184,006 and 2,491. The figures for each district are given below. *Fire.*

Means of Escape in Case of Fire.

Results of Inspection to end of 1900.

District.	Unsatisfactory.	Satisfactory.	District.	Unsatisfactory.	Satisfactory.
1. North London	801	11,552	23. Sheffield	7	8,275
2. South London	41	7,665	24. Huddersfield	204	2,033
3. West London	12	4,856	25. Halifax	440	1,728
4. East London	203	9,132	26. Bradford	26	2,010
5. Kent	8	862	27. Newcastle	8	4,731
6. Southampton	26	7,666	28. Manchester	67	7,718
7. Plymouth	4	4,096	29. Oldham	17	902
8. Bristol	26	8,543	30. Rochdale	24	1,977
9. Northampton	19	1,277	31. Bolton	1	2,869
10. Norwich	—	6,199	32. Cheshire	—	1,999
11. Birmingham	—	8,113	33. Liverpool	14	6,894
12. Worcester	9	845	34. Blackburn	125	2,744
13. Wolverhampton	1	6,305	35. Preston	27	2,772
14. South Staffordshire ..	7	2,266	36. West Scotland	79	10,828
15. North Staffordshire ..	—	3,639	37. South West Scotland ..	22	2,917
16. Leicester	4	2,709	38. South East Scotland ..	—	3,727
17. Nottingham	21	1,527	39. East Scotland	4	4,029
18. Derby	12	1,465	40. North Scotland	2	5,955
19. Lincoln	8	1,012	41. North Ireland	50	2,741
20. South Wales and Monmouthshire.	2	7,664	42. South Ireland	6	6,098
21. North Wales	4	2,852			
22. Leeds	21	7,416	United Kingdom	2,346	194,404

No statistics can be given of the action of the local authorities in cases referred to them (*see* Table 19), but the London County Council has been good enough to

* Lead Compounds in Pottery. Report to His Majesty's Principal Secretary of State for the Home Department, on the Work of the Government Laboratory on the Employment of Lead Compounds in Pottery; by Professor T. E. Thorpe, C.B., LL.D., F.R.S., Principal of the Government Laboratory. London, Eyre & Spottiswoode, 1901.

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furnish the following account of the action taken in the Metropolis up to the end of 1899:—

London County Council,
Spring Gardens, S.W.,
16*th January*, 1900.

Factory and Workshop Acts, 1878 to 1895.

SIR,

BY the provisions of the Factory and Workshop Acts, 1878 to 1895, the duty is imposed upon the Council of seeing that factories, workshops, and laundries situated within the area of the Administrative County of London, and in which more than forty persons are employed, are provided on the storeys above the ground floor with such means of escape in case of fire for the persons employed therein as can be reasonably required under the circumstances of each case.

I am directed by the Building Act Committee of the Council to transmit herewith for the information of the Secretary of State a return of the cases which have been dealt with by the Council under the provisions of the Acts up to 30th December, 1899, showing the manner in which the premises have been dealt with in each case.

It may be remembered that in October, 1891, a list of cases which appeared to come within the operation of the Acts was forwarded to the Council by the Secretary of State, and further cases have been notified to the Council from time to time. Altogether the Council's attention has been called to nearly 2,000 cases by the Secretary of State and through other sources of information. So far over 1,000 cases have been taken into consideration by the Council, and of these 432 have been dealt with in the manner hereinafter stated. In 135 cases of old buildings alterations have been made and means of escape provided; in 36 cases in which new buildings were erected, the Council's certificate has been issued in respect of the means of escape; in 129 cases it was found that not more than forty persons were employed, so that the provisions of section 7 of the Act of 1891 did not apply; in two cases the premises to which the Council's attention was drawn could not be identified; in 12 cases the number of persons employed was reduced to forty or less; in 25 cases it was found that the workpeople were employed on the ground floor only; in 37 cases the Council considered that the means of escape in case of fire were all that could reasonably be required; in 23 cases it was ascertained that the premises were not used as a factory, workshop, or laundry; in 16 cases the premises were found to be unoccupied; in 8 cases the premises were pulled down; in 3 cases it was found that the premises were not situated within the Administrative County of London; and in 6 cases the premises were destroyed by fire.

It will be seen on reference to page 2 of the return that amongst the premises dealt with were those of Messrs. Waller & Brown, 30 & 31, Hamsell Street, E.C., which were subsequently destroyed by the Cripplegate fire. The Council had required that the approaches to the staircases in these premises should be improved, and a doorway formed on the top floor leading to the roof, and it was stated at Fire Inquest held by the City Coroner that it was owing to this provision that the workpeople employed on the premises were enabled to escape. The Council also took steps with a view to dealing with the premises belonging to Messrs. Harrison & Smith, 28 & 29, Hamsell Street (page 3 of return) which were destroyed by the same fire, but the number of persons employed was subsequently found to be less than 40, so that the premises could not, therefore, be dealt with by the Council under the Factory and Workshop Acts.

A large number of cases are still engaging the attention of the Council, and further returns showing how these have been disposed of will be sent to the Secretary of State from time to time.

In considering what requirements shall be made, every endeavour is made by the Council to avoid unnecessary interference with the trade or manufacture carried on at the premises, and due consideration is always given to representations made by the owners. In the case of old buildings, requisitions specifying what, in the Council's opinion, should be done to afford proper means of escape in case of fire are sent to the owners, who in most cases do what is necessary. In the event of any owner being of opinion that the requisitions made by the Council are more than the safety of the persons employed on the premises requires, or that the requirements are excessive, he is at liberty to resort to arbitration. The fact that in very few instances out of the large number of cases dealt with by the Council the factory owners have thought it necessary to avail themselves of this right of appeal may, the Committee venture to think, be taken as evidence that in the main the Council's action has been considered reasonable by factory owners and their advisers.

I am, &c.,

C. J. STEWART,
Clerk of the Council.

The Under Secretary of State,
Home Office, Whitehall, S.W.

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Special Rules.

There are now some 7,500 works in which Special Rules have been established, as shown in Table 6. In order to simplify the records and further the administration of the Rules steps are being taken to print the registers of each class of works for the use of the Inspectors. Those already completed and issued deal with five out of the twenty-three branches of industry for which Special Rules have been framed.

Lucifer match.

The amended Special Rules for lucifer match works in which yellow phosphorus is used were established by arbitration in the six London factories, and were subsequently accepted by the occupiers of 18 other works, making a total of 24. Eight have since been closed (two temporarily), two have discontinued the use of yellow phosphorus, and there remain eleven to which the Arbitration Rules now apply. The text of the Rules, and some account of the arbitration, were given by anticipation in the last Annual Report.

Pottery.

Amended Special Rules for processes in the manufacture of earthenware and china were circulated in August, 1900. As the result of correspondence (*see* page 55) and conferences certain modifications were made, and others agreed upon in principle, but as regards the standards of insolubility of lead used in glazes the views of the manufacturers were at variance with those of the expert advisers of the Home Office, and arbitration became inevitable. The Rules were served formally in February, 1901, upon manufacturers, and objections were received from 402. Mr. Chester Jones, barrister-at-law, has been appointed to act as Arbitrator on behalf of the Home Office, and Mr. A. P. Llewellyn, solicitor, on behalf of the manufacturers. The full text of the proposed Rules, and of the principal objections made on the part of the manufacturers, appear at page 66. From these it will be seen that the points of difference from the 1898 Rules include prohibition of raw lead, insolubility of lead used in glazes, medical examination (with power of suspending from work) of men as well as women and young persons, and transfer of the responsibility for cleanliness of premises from the workpeople to the employers.

Leadless processes.

In the Home Office letter of December 14th, 1899, which appeared at page 12 of the last Annual Report, it was intimated that certain of the Rules directed against lead-poisoning would be relaxed as regards processes in which the use of lead was entirely discarded. This has been done by the establishment of a supplementary Rule in the terms there stated in respect of three factories.

Aërated water.

Although the Special Rules for aërated water manufacture have been observed in general, and most of the precautions had, indeed, been voluntarily adopted in certain works before the Rules were issued, objection has been raised by some manufacturers and workpeople on the ground that the work is hampered by the use of gauntlets and of guards for the eyes and face. It has also been alleged that sight is impaired by wearing goggles and masks.

Apart from the question of care in obtaining appliances of suitable construction, and in enforcing their use, it does not seem that precautions adopted without difficulty in a given process in one factory should be impossible in another. Upon the technical point of injury to sight, expert advice was sought, and in Appendix 8 will be found a Report by Mr. Simeon Snell, F.R.C.S., Ophthalmic Surgeon of the Sheffield Royal Infirmary. Mr. Snell finds that if sufficiently fine wire gauze is used, no impairment of sight or injurious effect upon the eyes is to be apprehended. He advises further precautions, more especially in the way of protection for the neck, and this is also mentioned in other Reports. Elsewhere* Mr. Snell has advocated the use of guards for the protection of grinders and others employed in iron and steel works. Among this class eye-accidents are of constant occurrence.

In his Report, pages 72-82, which will be reprinted and circulated among the manufacturers concerned, Mr. Snell refers to the frequency and gravity of the accidents to which workers in this branch are exposed. Further illustration of this is afforded by the list of 159 casualties due to explosions in aërated water factories, reported in 1900, which appears in the same appendix; and by the observations of Miss Squire, in the Report of the Principal Lady Inspector.

* Address delivered at the opening of the Section of Ophthalmology at the Annual Meeting of the British Medical Association at Portsmouth, August, 1899.—*British Medical Journal, August 12th, 1899, page* 389.

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Wool-combing.

The Special Rules for wool-combing, which were due to the joint initiative of the manufacturers and operatives, became established in 140 factories in the form in which they appear at page 57 of the last Annual Report. In the one instance in which serious objection was raised, it was ultimately withdrawn, and the arbitrators who had been appointed made a formal award, establishing the Rules without modification. In June, 1900, the system of measurement of air-current was defined as below.

> The following system of measurement of the average linear velocity of air passing through the screen of an opening board, in the central area of four feet, is approved for the purpose of Rule 1, viz. :—
>
> The velocity of the air current, in linear feet per minute, shall be ascertained at each of nine points as shown in the appended diagram. The measurements shall be made while the screen is in position, and by means of a standard anemometer four inches in diameter.
>
> One-ninth of the aggregate of the nine results so ascertained shall be deemed to be the average velocity of air passing through the central area of the screen.

The diagram is not reproduced here. It shows a row of three points 12 inches apart, and similar rows above and below, at the same distance.

Overtime.

The reports of overtime show a decrease except under one minor heading, that of "incomplete process" (s. 54, 1878). There was reduction in the number of reports in the number of places from which reports were received, and in the average number of days upon which overtime was worked in each place.

Description of Overtime.	Overtime Reports Received.				1900.	
	1899.	1900.	Increase or Decrease.		Places Working Overtime.	Average No. of Reports per Place.
			Number.	Per cent.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Ordinary overtime, s. 53, 1878	167,837	151,910	− 15,927	− 9·5	13,269	11·4
2. Incomplete process, s. 54, 1878	84	122	+ 38	+ 45·2	6	20·3
3. Emergency in Turkey red dyeing and open-air bleaching, s. 55, 1878.	—	—	—	—	—	—
4. Perishable articles, s. 56, 1878	2,093	1,984	− 109	− 5·2	116	17·1
5. Water power—Recovery of time lost, s. 57, 1878.	231	221	− 10	− 4·3	4	55·3
6. Laundries, s. 22, 1895 ...	6,156	5,000	− 1,156	− 18·8	508	9·8
Total	176,401	159,237	− 17,164	− 9·7	13,903	11·5

The district records of overtime under each statutory exception, and in connection with each process, are given in Table 7 for factories, and in Table 8 for workshops.

Further summaries will be found in Appendix 4; and on page 50 particulars are given of the overtime worked in each branch of the manufacture claiming the special exception as "making up of any article of wearing apparel." Here, again, decrease is to be noted in every branch except glove making.

Overtime is allowed under the Factory Acts in different ways. The Secretary of State has power to make Orders sanctioning it, to a limited extent, and subject to any

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conditions he may impose, in processes carried on in non-textile factories or workshops; and such Orders can be withdrawn or amended if they become obsolete or if difficulty arises in administration. Another class of overtime is determined directly by statute, and cannot be controlled or amended by Order. The processes in the latter category include important manufactures (*e.g.*, "the making up of any article of wearing apparel") as well as small incidental processes; and industries entailing some degree of danger to the operatives (*e.g.*, "aërated water making," which is now subject to Special Rules on that account); and others in which the practice of overtime has become obsolete, no reports having been received for years past. Further, the kinds of work in which overtime is to be allowed are named in terms in some instances so vague as to be almost unintelligible; for example, "Christmas present making," "making-up of furniture hangings," "fancy-box making." Under this last heading the overtime which was originally intended for light work upon the making and decorating of paper and thin wood boxes is now claimed for machine-work upon tin boxes, a process in which minor accidents are not infrequent.

The Inspectors have not only, in each of the 14,000 works in which overtime is claimed, to enforce the observance of the Acts as regards notices, and the limitations as regards frequency, duration, and class of persons employed under the special exception, but also to see that the overtime is confined to the processes in which it is allowed, and as far as possible to secure uniformity of administration in all parts of the United Kingdom. In these circumstances the 150,000 overtime notices received each year represent even more than would at first sight appear.

Separate departments.

Under the Separate Departments Orders of 1897, 280 certificates were issued in 1900, as shown in Appendix 6. Nine of these were for the purpose of separate period of employment, and the rest for separate overtime.

War Office contracts.

The special measures mentioned in the last Annual Report as having been found necessary in 1899, in order to expedite the despatch of supplies for the forces in South Africa, were continued in 1900. Orders under section 93, 1878, were made at the instance of the War Office, allowing an addition of two hours to the period of employment of women and young persons in certain Government factories. The Acts do not provide for any such latitude in the case of work, however urgent, upon Government contracts in private factories; but in cases indicated in that behalf by the War Office or Admiralty the efforts of the Inspector were directed chiefly to preventing the hours from being extended beyond the limits allowed in similar work in Government factories. Such places were marked for frequent visit and report, in order to keep in check any tendency to overtime of children, encroachment upon appointed statutory intervals for meals, and excess over the statutory maximum of continuous spell of work; and to ensure full compliance with the requirements of the Acts as regards the employment of women and young persons in other than emergency work on Government contracts.

Creameries in Ireland.

Further reference to the difficulty of strict observance of the Acts in creameries in Ireland is made in the Report of the Superintending Inspector for Scotland and Ireland. Mr. Bellhouse's observation as to the importance of pasteurisation in the prevention of disease has been followed in the current year by a further report upon an outbreak of enteric fever associated with a creamery and attributed to infection of one of the supplies of milk. Correspondence with the Irish Agricultural Organisation Society, in continuation of that which was recorded at page 109 of the last Annual Report, appears in Appendix 11.

Fish curing. *Convent industries.*

In the Report of the Principal Lady Inspector will be found interesting notes by Miss Squire as to convent industries in Ireland, and by Miss Paterson as to fish-curing in Scotland.

Cotton Cloth Factories Act.

The Report of the Inspector under the Cotton Cloth Factories Acts shows marked improvements in the ventilation of humidified cotton weaving sheds, as demonstrated by analysis of the air and determination of the proportion of carbonic acid. He found on the other hand high proportions of carbonic acid in samples of air taken from cotton spinning mills, but in wool and worsted mills the results of similar analyses were satisfactory. Mr. Williams again calls attention to the pollution of air by burning gas in work-rooms. He reports unfavourably of the conditions found in certain flax mills, and arrangements are being made for further enquiry.

Flax Special Rules.

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Artificial humidity.

The total number of humidity returns received and examined at the Central Office during 1900 was 32,927, and included some 2,000,000 double readings, *i.e.*, records of wet and dry bulb temperatures. In 1,940 instances irregularities were observed and referred to the Inspector. Particulars are given in the following table:—

Number of Cases of Excess of Humidity shown in Schedules received from Occupiers during 1900

Humidified Factories: Material and Process.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	Average No. of Monthly Returns.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Cotton Cloth	4	51	10	14	28	77	110	23	29	59	9	13	427	1,564
Cotton Spinning, Carding, &c.	2	—	—	11	16	5	13	9	19	6	19	3	103	381
Cotton Winding, &c. ...	—	—	—	—	—	—	—	—	2	—	—	—	2	24
Wool Spinning, &c. ...	—	—	2	—	—	—	—	—	—	—	3	—	5	18
Worsted Spinning, &c. ...	6	8	16	9	—	3	10	—	—	—	—	—	52	163
Wool: Merino, Cashmere, or Wool Spinning (with use of "French" or "Dry" Process).	—	—	—	—	—	—	—	1	—	—	—	—	1	16
Worsted: Merino, Cashmere, or Wool Spinning, (with use of "French" or "Dry" Process).	—	—	—	—	—	—	—	—	1	—	—	—	1	50
Silk Spinning, &c. ...	—	13	—	1	4	—	4	—	—	—	1	—	23	10
Silk Winding	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Flax Spinning (under s. 31, 1895).	—	—	—	—	—	—	—	—	—	—	—	—	—	Less than 1
Flax Spinning (under Special Rules).	110	98	79	41	33	24	9	11	9	13	9	11	447	331
Flax Weaving (under Special Rules).	44	60	135	54	19	4	16	118	105	45	161	117	878	179
Jute Spinning, &c. ...	—	—	—	—	—	—	1	—	—	—	—	—	1	1
Hemp Carding, &c. ...	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Total	**166**	**230**	**242**	**130**	**100**	**113**	**163**	**162**	**165**	**123**	**202**	**144**	**1,940**	**2,743**

With reference to the above table it may be remarked that many of the excesses indicated by the statutory records are apparent excesses only, and are really due to neglect of hygrometers, or to error in reading them or in recording the readings. Most of the irregularities recorded in the returns for cotton spinning (including carding) and worsted spinning are of this character.

The wet spinning of hemp is under neither the Cotton Cloth Factories Acts nor Special Rules, but a few humidity returns were received from occupiers (two in each month, on an average), and these showed humidity in excess of the usual standards in 202 instances.

Textile particulars.

As regards textile particulars, Mr. T. Birtwistle is able to report an increased number of visits, fewer irregularities of a kind calling for prosecution, and a very satisfactory degree of observance of the requirements of section 40, 1895. He furnishes tables showing the county distribution of textile factories and workshops in which the operatives are paid by the piece.

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Non-textile particulars.

In the circumstances stated at page 25, an Order was issued in 1900 adding pen-making to the list of non-textile industries in which particulars of piecework are obligatory. A special report upon this subject by Miss Squire is included in the Report of the Principal Lady Inspector. Information as to the number of places affected by this and earlier Orders of the same nature appears in Table 3.

Outworkers' lists.

In certain branches of industry, employers are required to furnish to the Inspector lists of outworkers twice a year, but this duty has never been fully observed. In spite of a considerable number of prosecutions for default, and some temporary improvement in 1899 (brought about by special effort on the part of the Inspectors, and necessarily at some sacrifice of more important duties), the returns have again fallen off. Particulars of those received are given in Appendix 5, in which, however, only one of the two returns due in each year from the employer is taken into account.

Truck.

The administration of the Truck Acts in Ireland has been further hampered by the decisions to which reference is made in the Report of the Principal Lady Inspector; but, so far, the result of *Squire* v. *Sweeney*, does not appear to have influenced the practice of English Courts in dealing with similar questions.

Prevention of Cruelty to Children Act.

The number of children respecting whom licences were received under Section 3 of the Prevention of Cruelty to Children Act, 1894, was 378. The figures for 1898 and 1899 were 448 and 368, respectively. From the following table it will be seen that the conditions of the licences granted during the year 1900, were not observed in 15 cases. The attention of the managers was drawn to the irregularities in question, and the necessary instructions were given by the Inspectors at their visits.

Description.		No. of children Licensed.	No. of Licences granted.	No. of Licences conditions of which were not observed.
For one performance only in ...	Theatres, Music Halls, &c. ...	4	4	1
	Schools, &c.	—	—	—
For two or more performances in	Theatres, Music Halls, &c. ...	255	219	14
	Schools, &c.	119	3	—
Totals		378	226	15

Education Acts.

The Elementary Education (School Attendance) Act (1893) Amendment Act, 1899, has given rise to some difficulty in the North Western Division, as explained in the Report of the Superintending Inspector.

It was followed by the Elementary Education Act, 1900, which raised the standard of previous due attendance (qualifying for a certificate of exemption from further attendance at school, and hence indirectly for full time employment in factories and workshops in the case of children between 13 and 14) from 250 to 350 in each of four years (Section 7). Under an order of the Secretary of State reprinted in Appendix 1, the same standard was adopted for the purposes of the Factory Acts. Section 6 of the same Act empowers local authorities to make bye-laws for the attendance of children at school up to the age of 14 years, the limit under the 1880 Act having been 13 years.

Examination of children and young persons.

The Annual Reports of the Certifying Surgeons, as regards the examination of children and young persons for employment in factories, are summarised in Table 4. There was further decrease in the numbers of children examined for half-time employment, further increase in the number of young persons examined for full time employment. Among the latter are included an increased proportion under 14 years of age: but the enquiry now made by the Statistical Branch in respect of doubtful returns has resulted

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in many transfers to this group, and has thus prevented any close comparison with previous years upon equal terms.

Children and Young Persons Examined by Certifying Surgeons for Employment in Factories, 1898-1900.

Examined for.	Age.	1898.	1899.	1900.
Half time employment ...	Under 14	82,108	51,268	39,638
Full time employment ...	13 to 14	303,265	129,508	136,793
	14 to 16		231,365	230,163

The rejections on medical grounds were fewer, both absolutely and relatively, than in 1899: the per centage being 0·46 in place of 0·51.

The following observations, which certain of the certifying surgeons have been good enough to attach to their Annual Reports, are of interest.

Dr. Edwin Rayner (Stockport) :—

I beg to forward the Tables referred to in my letter of January 28th of the ages of children and young persons who were certified for the first time during the year 1900 of 342 children examined, 210 were certified for the first time, the corresponding figures for 1889 being 415 and 241 respectively.

Of young persons, of a total of 1,638 examined 437 had never previously been employed in any occupation requiring a certificate; in 1899, 1,833 young persons were examined, of whom 416 were certified for the first time.

Owing to the alteration in the age at which children are allowed to commence to work, these tables—so far as children are concerned, do not afford a basis of comparison with the tables of the previous year; but it will be noted that the table referring to young persons in 1900 corresponds very closely with the similar table for 1899.

It is not necessary to refer at length to these figures, but it appears to me that the observations made and conclusions noted in my communication a year ago are fully confirmed by the accompanying tables.

Ages at which Children and Young Persons First Commenced Work in Factories at Stockport in 1900.

Children.			Young Persons.		
Age.		Number.	Age.		Number.
Years.	Months.		Years.	Months.	
11	—	3	13	—	114
11	1	3	13	1	31
11	2	1	13	2	20
11	3	2	13	3	18
11	4	1	13	4	21
11	5	2	13	5	9
11	6	1 (22)	13	6	13 (267)
11	7	3	13	7	13
11	8	1	13	8	5
11	9	1	13	9	8
11	10	1	13	10	9
11	11	3	13	11	6

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Ages at which Children and Young Persons First Commenced Work in Factories at Stockport in 1900—*continued*.

Children.				Young Persons.			
Age.		Number.		Age.		Number.	
Years.	Months.			Years.	Months.		
12	—	38		14	—	41	
12	1	20		14	1	19	
12	2	13		14	2	10	
12	3	13		14	3	9	
12	4	15		14	4	11	
12	5	7		14	5	5	
12	6	14	140	14	6	7	127
12	7	9		14	7	6	
12	8	4		14	8	6	
12	9	3		14	9	2	
12	10	2		14	10	5	
12	11	2		14	11	6	
13	—	22		15	—	2	
13	1	6		15	1	5	
13	2	9		15	2	3	
13	3	1		15	3	1	
13	4	0		15	4	3	
13	5	4		15	5	6	
13	6	0	48	15	6	6	43
13	7	1		15	7	3	
13	8	0		15	8	2	
13	9	2		15	9	5	
13	10	2		15	10	4	
13	11	1		15	11	0	
				Over 16	—	3	
Total		210		Total		437	

Dr. W. H. Ellis (Shipley) :—

You will notice that during the past year, as in 1889, no rejections have been made, and also the number of children and young persons certified has fallen from 3,200 in 1899 to 2,575 in 1900.

The former is undoubtedly due to the greatly improved physical condition of those presented (especially girls) as a result of the material prosperity of these districts, coupled with improved sanitary conditions and wider educational opportunities.

The latter is due to the great scarcity of workers during the busy periods of 1898 and 1899, also to the fact that the larger employers pride themselves upon the class of workers they engage and so changes in such cases are fewer.

During the latter part of the year the number of children employed has increased and, after a considerable experience, I am of opinion that the physical exercise in well ordered factories is not only not detrimental to their bodily development, but enables them from sheer variety in work to be better able to do their school tasks. The number of accidents in 1900 was 112 against 135 in 1899. This, I believe, is due in great measure to the readiness of employers to accept and work out the suggestions of H.M. Inspectors, and during the seven and a-half years I have acted as certifying surgeon in a fairly large district, I have been struck with the difference in which those gentlemen are viewed by employers of labour—considered now as friends to be trusted, rather than with suspicion, noticeable at the early periods of my work.

There are two matters which occur to me worth mentioning. First, the danger of the growing fashion amongst girls of working amongst machinery wearing the hair loose down the back, and, second, the wearing of blue jackets having long, loose sleeves, these should either be tight or cut off at the elbow. I have seen two or three severe accidents from this cause.

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Dr. D. Fraser (Paisley) :—

Many children and young persons suffering from eye affections and temporary defects were advised, and postponed in some cases for a week. The only factory where this has been done is at the Messrs. Coats' Thread Works, where the examinations of the half-timers and young persons are always done with special care and punctuality. A member of the firm (now a director of the Company), has been almost invariably present, assisting at the examination for all the years I have acted as certifying surgeon there. Here anything of the kind above referred to can be done, as the visit is paid weekly, within the strict letter of the Acts. The eye cases advised were chiefly those of squamous blepharitis, cases of anæmia not severe enough for rejection, and various slight ailments. About a month ago a girl of 14 was asked to show herself the week after she appeared first, in order to see what, if any, difference the week's work had made in her appearance, which was anæmic. Last week I stopped a girl of 14, suffering from excessive hypermetropia, and advised her gratis as to glasses, with which she appeared this week and was certified.

I may say the half-time system is worked in this factory so well that its evils are at a minimum. The school examinations of their half-time workers equally and generally excel those of the full-time schools.

Dr. J. F. Arlidge (Stoke-on-Trent).—The report shows a great diminution in the number of refusals on account of "want of cleanliness." I may say that there is a great improvement in this matter in this district generally; as far as girls are concerned, their clothes, as a rule, are better looked after, and though there is still room for improvement in many cases, I am pleased to be able to state that in the matter of cleanliness things are much better. The number of refusals for having no register, may, at first sight, suggest carelessness among employers; but it must be borne in mind, that these boys in clay are generally employed by the men with whom they work, and these boys are constantly changing places, sometimes, indeed, only stopping at a place for a part of a week, sometimes only a day. There is a great want felt now for lads generally, and they are tempted to leave their places on the offer of any slight rise of wage. With these constant changes going on, it is easy to see that there are often difficulties of producing their certificates.

I have come across two or three cases where boys of 12 have received full-time attendance certificates, this seems to me anomalous, and I refuse them for full-time until they reach the age of 13. Registers are stamped (for full-time employment)—these stamps, however, bear no date, and the certifying surgeon or employer has to put down the date of school certificate in his book. If the stamp of school board had a date on, it would do away with the necessity of carrying about two certificates, and would show at once the date on which the School Board Authorities had granted the necessary certificate.

Miss Paterson has instituted a very useful enquiry at Glasgow into the further history of children and young persons to whom certificates of fitness for employment in factories are refused by the Certifying Surgeon. Her report is included in that of the Principal Lady Inspector.

Enquiry in another direction has been made by Mr. H. J. Wilson, who, in the Report of the Superintending Inspector for the Scotland and Ireland Division, supplies particulars of the height and weight of a number of children employed in jute factories at Dundee, and in flax factories at Brechin, whom he has weighed and measured. He finds the *physique* of the Dundee children to be considerably below the usual standards.

Certifying surgeons.

There are 2,142 Certifying Surgeons' districts in the United Kingdom, distributed as shown in the table at page 23. During the past year vacancies arose in 192 instances—155 by resignation, 36 by death, 1 by revocation of appointment. These vacancies and the appointments subsequently made, have been announced in the *London Gazette*. Further progress has been made in the definition of districts in terms of area, and this work is now completed for the greater part of England and Wales. The results are being printed in instalments, each covering a county or an Inspector's district, and 31 such lists have already been issued.

Revision of forms.

In connection with the Factory Acts there are upwards of 100 different official forms in use by occupiers, apart from those used by the Inspectors and the Certifying Surgeons. As occasion arises for reprint, these are revised, and many were thus dealt with in 1900. The English and Welsh issues of the Workshop Abstract were recast and brought up to date, with the addition of a note as to the Truck Acts. The forms of register for factories and workshops were rearranged and simplified. The other changes of this kind completed in 1900 were of less importance, but among those taken in hand in the current year, are the Abstracts for Laundries, Textile and Non-textile Factories; and a full detailed list of official form has been issued for the information of occupiers. Hitherto there has been no Abstract summarising the provision of the Acts which apply to workshops in which men only are employed. This omission has been remedied.

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Annual return of persons employed.

About 247,000 applications were issued to occupiers of factories and workshops for the Fifth Annual Return of Persons Employed, collected during 1900. The enormous labour connected with the preparation of these returns by a limited staff, and the fact that there were many thousands of omissions on the part of occupiers (notwithstanding a large number of prosecutions) to comply with the statutory duty to make this return in the preceding year, led to the decision to combine for publication of the information gained from the fourth and fifth year's returns. The tabulation of the returns of the two years upon this basis has been suspended, in order that the numerous other statistical returns might be completed for the earlier issue of the Annual Report. Considerable progress has, however, been made, and the amalgamated Return of Persons Employed in Factories (to which it has been found necessary to confine the tabulation) will be issued as a supplement to this report at an early date.

Besides the attempt to distinguish workers under the age of 14 who are employed under exceptional provisions as full-timers, the forthcoming Annual Return tables will include as a new feature division of counties into the present revised Inspectoral districts. Particulars of factory industries will also be shown separately for the cities of Glasgow, Liverpoool, Manchester, Birmingham, Leeds, and Sheffield.

Inquests.

The Inspectors give the following returns of inquests attended in 1900. In some districts, and especially in London, Manchester, Liverpool, and Newcastle, this duty claims a very considerable part of the Inspector's time :—

Attendances of H.M. Inspectors at Inquests, 1900.

District.	Number.
1. North London	17
2. South London	83
3. West London	45
3a. Works assigned to Miss Deane	1
4. East London	51
5. Kent	16
6. Southampton	7
7. Plymouth	9
8. Bristol	27
9. Northampton	1
10. Norwich	4
SOUTHERN DIVISION	261
11. Birmingham	34
12. Worcester	3
13. Wolverhampton	22
14. South Staffordshire	26
15. North Staffordshire	19
16. Leicester	4
17. Nottingham	7
18. Derby	15
19. Lincoln	8
20. South Wales	47
21. North Wales	5
MIDLAND DIVISION	190
22. Leeds	38
23. Sheffield	39
24. Huddersfield	6
25. Halifax	12
26. Bradford	21
27. Newcastle	69
NORTH EASTERN DIVISION	185
28. Manchester	74
29. Oldham	24
30. Rochdale	15
31. Bolton	14
32. Cheshire	12
33. Liverpool	55
34. Blackburn	16
35. Preston	20
NORTH WESTERN DIVISION	230
36. West Scotland	1
37. South West Scotland	5
38. South East Scotland	—
39. East Scotland	10
40. North Scotland	3
41. North Ireland	1
42. South Ireland	5
SCOTLAND AND IRELAND DIVISION.	25
TOTAL	891

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Prosecutions.

Prosecutions were fewer than in the previous year. Full particulars are given in Tables 21 to 26 at the end of this volume; and a separate return is made, in Appendix 3, of the cases under the "penal compensation" section (s. 82, 1878).

Prosecutions.	1897.	1898.	1899.	1900.
Persons prosecuted	1,580	1,603	1,541	1,449
Groups of cases	1,998	2,043	1,954	1,869
Cases	3,518	3,654	3,574	3,287

Out of the 3,287 instances in which informations were laid, 3,151 (95·9 per cent.) ended in conviction, 50 (1·5 per cent.) were withdrawn on payment of costs by the defendants, and 86 (2·6 per cent.) were dismissed. The average penalty inflicted in 1900 was considerably higher than in any previous year.

Year. (1)	Convictions. (2)	Cases Withdrawn on Payment of Costs. (3)	Cases Dismissed, &c. (4)	Total Amount of Penalties. (5)	Total Amount of Costs. (6)	Average Penalty in each Case where Conviction ensued. (7)	Average Costs in each Case where Conviction or Withdrawal on Payment of Costs ensued. (8)
				£ s. d.	£ s. d.	£ s. d.	£ s. d.
1895	3,038	63	87	2,041 12 0	1,193 7 8	0 13 5	0 7 8
1896	3,174	82	85	1,913 15 0	1,329 18 7	0 12 1	0 8 2
1897	3,359	69	90	2,191 19 10	1,417 6 10	0 13 1	0 8 3
1898	3,501	47	106	2,727 3 7	1,510 4 2	0 15 7	0 8 6
1899	3,406	84	84	2,503 6 0	1,419 19 3	0 14 8	0 8 2
1900	3,151	50	86	2,692 18 11	1,278 6 1	0 17 1	0 8 0

An account of the more important cases decided on appeal will be found in Appendix 2.

Inspectors' districts.

The boundaries of the Inspectors Districts in London have been readjusted in conformity with those of the Metropolitan Boroughs; and the Urban District of Queensbury has been transferred from Halifax to Bradford for the purposes of the administration of the Factory Acts. Otherwise the arrangement which came into force on January 1st, 1900, remains unaltered. Additional particulars with reference to each inspector's district, and especially as to accidents, are given this year in the tables at the end of the volume, and include the number of reported accidents. Petty Sessional Divisions, and Districts of Coroners, Sanitary Authorities, and Certifying Surgeons, and still further details appear in the following summary:—

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Local Administrative Areas included in Inspectors' Districts.

District.	Area in Square Miles.	Sanitary Districts.	Certifying Surgeons' Districts.	Petty Sessional Divisions.	Coroners' Districts.
North London	740	56	36	28*	16
South London	2,244	90	69	46*	19
West London	2,323	86	63	56*	26
East London...	1,671	54	46	28*	10
Kent	1,627	65	49	35	18
Southampton	3,803	77	67	46	25
Plymouth	3,954	97	84	58	20
Bristol	3,783	101	98	73	16
Northampton	1,451	41	40	24	8
Norwich	4,776	91	77	76	28
Birmingham...	955	31	32	24	7
Worcester	1,503	42	27	38	7
Wolverhampton	1,432	51	32	28	14
South Staffs...	318	17	17	15	6
North Staffs...	751	30	23	16	5
Leicester	953	28	30	11	6
Nottingham	822	27	28	10	5
Derby	977	44	34	18	6
Lincoln	2,776	50	41	26	11
South Wales...	4,844	111	107	80	25
North Wales...	3,130	73	59	54	12
Leeds...	3,619	75	71	46	25
Sheffield	623	37	23	9	5
Huddersfield	175	37	17	7	3
Halifax	145	23	11	4	2
Bradford	708	32	33	10	7
Newcastle	3,045	106	64	57	14
Manchester	131	18	15	6	4
Oldham	57	15	10	7	3
Rochdale	148	18	10	6	3
Bolton	271	32	21	8	5
Cheshire	667	39	27	17	5
Liverpool	652	40	25	22	9
Blackburn	225	18	14	15	3
Preston	3,003	56	59	33	14
West Scotland	5,028	55	82	17†	55‡
South West Scotland	3,792	53	45	6†	35‡
South East Scotland	2,490	52	43	9†	32‡
East Scotland	4,015	69	65	7†	34‡
North Scotland	14,458	82	65	13†	49‡
North Ireland	8,587	81	179	173	28
South Ireland	23,964	210	204	457	56

* Petty Sessional Divisions which are included in Metropolitan Police Court Districts are omitted, and the latter enumerated instead.

† Sheriff-Substitute districts.

‡ County and Borough Procurator Fiscal districts.

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Some of the difficulties with which the Inspectors of this Department have to contend, are illustrated by the figures given in this and the final tables. Apart from the mere number of places to be kept under inspection, and the increasing number and complexity of the points to be observed in each, it is necessary to take into account the distances to be travelled, the number of accidents, poisoning cases, inquests, and other matters of urgency claiming special attention as distinguished from routine inspection; and also the number of different local authorities, coroners, courts of first instance, and certifying surgeons within the district. All these connote records, reports, notices, and other correspondence, making up a total of work, both active and clerical, which is heavy in every district and branch of the department, and in some excessive. The standard of actual inspection now attempted is a minimum of one visit per annum to each works, and four to places under Special Rules, but some require more than this, and the standard cannot be maintained throughout.

It is inevitable that priority should be given to matters of emergency, and these are not infrequent among the quarter of a million places under inspection. It is not practicable for a limited central staff to relieve local authorities of their primary responsibility in matters of sanitation in workshops and outworkers' premises, and hence the inertia of many such bodies, to which reference is made in several of the Inspectors' reports, is the more to be regretted.

Table 19 contains some particulars as to the number and character of the matters referred to local sanitary authorities. There were 4,542 in all, a substantial increase upon the 4,191 referred in 1899.

Sanitary accommodation.

Standards of sanitary accommodation for persons employed in factories and workshops have been adopted by most of the local sanitary authorities, more especially in the large towns, who give attention to this part of their duties; but no statutory standard has been prescribed, and hence the action of the authority, or of H.M. Inspectors, proceeding in their default has often been attended with considerable difficulty even in gross cases of inadequacy or unfitness. The important decision of the High Court in *Tracey* v. *Pretty*, reported at page 30, will improve the position in this respect, but in the absence of any authoritative general standard, the practice must vary to some extent in different localities, and indeed the requirements of certain local authorities exceed, while others fall short of, the minimum which it has been the practice of the Factory Department to claim.

Orders of Secretary of State.

Three Orders, to which reference has already been made, were issued in 1900, and are reprinted at pages 25–28.

The Orders (affecting factories and workshops) which have from time to time been made by the Secretary of State, and which remained in force on January 1st, 1901, have now been published in corrected form.*

I am, &c.,

ARTHUR WHITELEGGE.

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* Statutory Orders relating to Factories and Workshops, London: Eyre & Spottiswoode, 1901, pp. 116. Price 2*s.* 0*d.*, by post 2*s.* 3*d.*

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APPENDIX I.

ORDERS OF THE SECRETARY OF STATE.

Three Orders concerning factories and workshops were issued in 1900, apart from those affecting Government factories only.

Subject.	Act & Section.	Date of	
		Order.	Operation.
1.—Pen Making— Particulars...	S. 40, 1895.	July 12, 1900.	August 1, 1900.
2.—Bright or Burnished Metal Goods Factory Warehouses— Separate period of employment ...	S. 39, 1895.	Sept. 6, 1900.	Oct. 1, 1900.
3.—Standard of Proficiency and of Persons Due Attendance (England and Wales) ...	S. 26, 1895. S. 95, 1895.	Dec. 19, 1900.	July 1, 1901.

Pen Making (Particulars).

The Particulars Section (s. 40, 1895) requiring that "the occupier shall, for the purpose of enabling each worker who is paid by the piece to compute the total amount of wages payable to him in respect of his work, cause to be published particulars of the rate of wages applicable to the work to be done, and also particulars of the work to which that rate is to be applied," was addressed primarily to textile factories, but the Secretary of State has power to extend them, with modifications, to any class of workshops or non-textile factories. Such extensions had already been made in the case of handkerchiefs, aprons, pinafores and blouses, chains, cables and anchors, locks, latches and keys, felt hats, and wholesale tailoring. Application was made for similar treatment of the pen making trade, which is carried on in factories at Birmingham. As the outcome of an enquiry, which was rendered difficult and protracted by reason of the complexity of the method of computing wages, the Secretary of State was satisfied that compulsory particulars were reasonable and practicable, and made an order in the following terms:—

Whereas it is enacted by subsection (6) of section 40 of the Factory and Workshop Act, 1895 (58 & 59 Vict. c. 37), that the Secretary of State, on being satisfied by the report of an inspector that the provisions of the said section are applicable to any class of non-textile factories or to any class of workshops, may, if he thinks fit, by Order made in accordance with section 65 of the Factory and Workshop Act, 1878 (41 & 42 Vict. c. 16), apply the provisions of the section to any such class subject to such modifications as may in his opinion be necessary for adapting those provisions to the circumstances of the case:

And whereas I am satisfied upon the report of an inspector that the provisions of the section are applicable to the classes of factories and workshops herein-after specified:

And whereas I am of opinion that certain modifications are necessary for adapting these provisions to the circumstances of the case in the said factories and workshops:

Now, I, the Right Honourable Sir Matthew White Ridley, Baronet, one of Her Majesty's Principal Secretaries of State, by this Order made in pursuance of the above-recited sections,

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apply the provisions of the said section 40 of the Factory and Workshop Act, 1895, subject to the modifications herein after contained, to the classes of factories and workshops in which is carried on the making of

PENS.

The said section shall be modified so as to read as follows :—

(1.) The occupier shall for the purpose of enabling each worker who is paid by the piece to compute the total amount of wages payable to him in respect of his work, cause to be published particulars of the rate of wages applicable to the work to be done, and also particulars of the work to which that rate is to be applied, as follows :—

(*a.*) He shall furnish every worker with particulars of the rate of wages applicable to the work to be done either

(i.) by handing him a written or printed statement of such particulars when the work is given out to him ; or

(ii.) by exhibiting such particulars in the factory or workshop on a placard containing no other matter than the rates of wages applicable to the work done in the factory or workshop, and posted in a position where it is easily legible.

(*b.*) Such particulars of the work to be done as affect the amount of wages payable to each worker shall be furnished to him in writing at the time when the work is given out to him.

(*c.*) The particulars, either as to rate of wages or as to work, shall not be expressed by means of symbols.

(2.) If the occupier fails to comply with the requirements of this section, he shall be liable for each offence to a fine of not more than ten pounds, and, in the case of a second or subsequent conviction within two years from the last conviction for that offence, not less than one pound.

(3.) If anyone engaged as a worker in any of the aforesaid factories or workshops, having received such particulars whether they are furnished directly to him or to a fellow workman, discloses the particulars for the purpose of divulging a trade secret, he shall be liable to a fine not exceeding ten pounds.

(4.) If anyone for the purpose of obtaining knowledge of or divulging a trade secret, solicits or procures a person so engaged to disclose such particulars, or with that object pays or rewards any such person, or causes any person to be paid or rewarded for so disclosing such particulars, he shall be liable to a fine not exceeding ten pounds.

This Order shall come into force on the 1st day of August, 1900.

M. W. RIDLEY.

Home Office, Whitehall, 12th July, 1900.

Warehouses of Non-textile Factories in which Bright or Burnished Metal Goods are Made. Separate Departments—Period of Employment.

Until 1895, separate periods of employment were permitted in all non-textile warehouses—these being allowed the 8 to 8 period while the rest of the factory could only work from 7 to 7, or from 6 to 6, unless entitled to special exemption under section 42. The 1895 Act put an end to this. Section 13 sanctioned the 8 to 8 period in all non-textile factories ; but section 54 and schedule 3 repealed section 42, 1878, with the result that in warehouses the former sanction was continued only if the same hours were adopted for the factory as a whole.

In the case of edge tool factories an Order was made in January, 1899, under section 39, 1895, allowing the warehouse to be treated as a separate department as far as period of employment is concerned.

A like sanction was sought by occupiers of factories in which bright and burnished metal goods are made, and on similar grounds—viz., that if the warehouse hands cannot work later than the rest, the goods last made cannot be cleaned, polished, wrapped up, packed and stored, or sent away the same night, and hence they incur danger of rusting or tarnishing.

The principal manufacturers concerned are those of silver plate, electro plate, cutlery, buckles, bits, bright chains and locks, and brass finishing.

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The Secretary of State being satisfied on enquiry that in this case permission to fix separate periods of employment was needed, and could properly be granted, made an Order as below :—

Whereas by section 39 of the Factory and Workshop Act, 1895 (58 & 59 Vict. cap. 37), it is enacted that the Secretary of State may, by Order made in accordance with section 65 of the Factory and Workshop Act, 1878 (41 & 42 Vict. cap. 16), direct, with respect to any class of factories or workshops, that different branches or departments of work carried on in the same factory or workshop shall, for all or any of the purposes of the Factory Acts, be treated as if they were different factories or workshops :

I, the Right Honourable Sir Matthew White Ridley, Baronet, one of Her Majesty's Principal Secretaries of State, by this Order made in pursuance of the above-mentioned sections, direct, with respect to the factories and workshops named in the schedule to this Order, that a part of any such factory or workshop which is *a warehouse not used for any manufacturing process or handicraft, and in which persons are solely employed in polishing, cleaning, wrapping or packing up goods*, may, so far as regards the PERIOD OF EMPLOYMENT OF CHILDREN, YOUNG PERSONS AND WOMEN, be treated as if it were a different factory or workshop, subject to the following conditions :—

(1.) (*a*) Such part must consist of a separate room or separate rooms ;

(*b*) such part must be under separate and distinct management ;

(*c*) no person who is employed in such part may be employed in any other part of the factory or workshop.

(2.) Such part shall have a separate notice (Period of Employment Notice) under section 19 of the Factory and Workshop Act, 1878, affixed therein.

(3.) The occupier of the factory or workshop must obtain from the Inspector, and must hold, a certificate that in his opinion, having regard to all the circumstances of the case, the separation of such part from the rest of the factory or workshop, and the arrangements for carrying out the above conditions, are satisfactory, and such certificate shall cease to be of any effect on the expiration of one week after the Inspector shall have served on the occupier notice in writing that the separation and arrangements aforesaid are no longer satisfactory.

This order shall come into effect on the 1st day of October, 1900.

M. W. RIDLEY.

Home Office, Whitehall,
6th September, 1900.

Schedule.

Factories or workshops in which the manufacture of bright or burnished metal goods is carried on.

Standards of Proficiency and of Previous Due Attendance (England and Wales)

Under the Order of August 7th, 1893, the "previous due attendance at school," of which a child of 13 had to obtain a certificate from the school authorities in order to qualify for full time occupation in a factory or workshop, or a young person (section 26, 1878), was "250 attendances after five years of age, in not more than two schools during each year, for five years, whether consecutive or not." The Elementary Education Act of 1900, however, required not 250, but 350 such attendances as a condition of exemption from further attendance. It became necessary to bring the two standards into harmony, and accordingly an Order, applicable to England and Wales only, was made in the following terms :—

41 & 42 Vict. c. 16, sec. 26.

Whereas by the Factory and Workshop Act, 1878, it it enacted as follows :—

Section 26.—When a child of the age of 13 years has obtained from a person authorised by the Education Department a certificate of having attained such standard of proficiency in reading, writing, and arithmetic, or such standard of previous due attendance at a certified efficient school, as hereinafter mentioned, that child shall be deemed to be a young person for the purposes of this Act.

The standards of proficiency and due attendance for the purposes of this section shall be such as may be from time to time fixed for the purposes of this Act by a Secretary of State, with the consent of the Education Department, and the standards so fixed shall be published in the *London Gazette*, and shall not have effect until the expiration of at least six months after such publication.

Attendance at a certified day industrial school shall be deemed for the purposes of this section to be attendance at a certified efficient school.

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Section 95.—The expression "certified efficient school" in this Act means a public elementary school within the meaning of the Elementary Education Acts, 1870 and 1873, and any workhouse school in England certified to be efficient by the Local Government Board; and also any elementary school which is not conducted for private profit and is open at all reasonable times to the inspection of Her Majesty's inspectors of schools, and requires the like attendance from its scholars as is required in a public elementary school, and keeps such registers of those attendances as may be for the time being required by the Education Department, and is certified by the Education Department to be an efficient school.

And whereas on the 7th August, 1893, an Order was made by the Secretary of State fixing standards of proficiency and standards of previous due attendance, for the purposes of the above recited enactments so far as they relate to England and Wales.

Now I, the Right Honourable Charles Thomas Ritchie, one of Her Majesty's Principal Secretaries of State, with the consent of the Board of Education, hereby for the purpose of the said enactments, and so far as the same relate to England and Wales, order that, from and after the 1st day of July, 1901, the aforesaid Order of the 7th August, 1893, shall be revoked, and instead thereof the following provisions shall take effect, that is to say :—

(*a.*) The standard of proficiency for the purpose of a certificate of proficiency to be given to any child shall be the Fifth Standard of reading, writing, and arithmetic, as fixed by the Code in force for the time being, or any higher standard which may be attained by the child.

Certificates of proficiency may be granted in the manner prescribed by sections 4 to 8 of the Regulations of the Board of Education, dated 23rd April, 1900.

(*b.*) The standard of previous due attendance at a certified efficient school for the purpose of a certificate of previous due attendance shall, in the case of any child be 350 attendances, after such child has attained five years of age in not more than two schools during each year for five years, whether consecutive or not.

Certificates of previous due attendance at school may be granted in the manner prescribed by sections 9 to 11 of the Regulations of the Board of Education, dated 22rd April, 1900.

CHAS. T. RITCHIE,
One of Her Majesty's Principal Secretaries of State.

Home Office, Whitehall,
December 19, 1900.

The Board of Education hereby consent to the standards of proficiency and due attendance fixed by the Secretary of State in the above Order for the purposes of the Factory and Workshop Act, 1878.

H. M. LINDSELL,
One of the Assistant Secretaries of the Board of Education.

December 31, 1900,

Note.—In districts where the Byelaws made by the School Authority under the Elementary Education Acts apply to children between 13 and 14 years of age, a child must also satisfy the conditions of total exemption prescribed by the Byelaws before he can be legally employed full time in a factory or workshop.

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APPENDIX 2.

APPEAL CASES, 1900-1.

1. Squire v. Sweeney.

HIGH COURT OF JUSTICE IN IRELAND (QUEEN'S BENCH DIVISION), January 16th, 1900.

Before Palles, C.B., Andrews and Johnson, JJ.

[*Irish Weekly Law Reports*, January 30th, 1900.]

Magistrates' case stated—Factory Acts—Truck Acts—Inspection—Enquiry—Place for giving out work—Obstructing Inspector.

The Act 41 *Vict. c.* 16, *s.* 68 (4), *does not confine the place at which enquiries and examinations under it are made to the place where work is given out to outworkers, or to the factory or workshop itself.*

This was a case stated by the Justices of Donegal, sitting at Dungloe Petty Sessions. The case set out that the summons was taken out by Rose Squire, an Inspector of Factories, against John Sweeney, junior, for: "That he, being an employer within the meaning of the Truck Acts, 1881, 1887, 1896, did unlawfully obstruct an inspector, to wit, the complainant, in the execution of her duty." At the hearing of the complaint it was proved that the complainant was an Inspector of Factories and Workshops, and that the defendant was a partner in the firm of John Sweeney and Son, hosiery contractors, grocers, drapers, and hotel keepers of licensed premises. The complainant proved that she and Miss Deane, another inspector, were in Dungloe by instruction of the Home Office to execute the Truck Acts, and that on the 14th November, 1899, they, with Constable B. McCaughey, R.I.C., entered the premises of the defendant, in the back part of which hosiery work was given out, and which was not connected with the drapery shop, but which was entered by a separate door from the back yard, and that they approached the premises to make enquiries in pursuance to the powers given them by the Truck Act (1887), section 13 (2); Truck Act (1896), section 10; Factory and Workshop Act (1878), section 68, in order to obtain information required by them for the purposes of the Act. It was proved that the complainant had power to enter the premises and require production of the list of outworkers under the Factory and Workshop Act (1891), section 27, and Factory and Workshop Act (1895), section 42 (2), and that in consequence of the conduct of the defendant no enquiries were made, and that there was no opportunity of disclosing the object of the visit, and that the name of the occupier of the buildings appeared both as "John Sweeney" and "John Sweeney and Son." These premises included a drapery shop, a grocery shop, a hosiery giving-out department, and a business office which formed part of the drapery shop. The entire premises formed one block of buildings. The defendant was standing at the door of the drapery shop when the complainant approached. She went to him and asked if she could have speech with him; the defendant turned and led the way into his private office, and when they got there she asked if she were addressing Mr. John Sweeney. He made no reply, but ordered her in a violent manner to leave, and turned her towards the door. She had no opportunity to produce her warrant of authority, and she was not asked for it. When the complainant, Miss Deane, and Constable McCaughey were on the street, the defendant again molested and abused them. The defendant contended that the drapery shop was not a factory, and he proved that no hosiery work was given out there, and that the hosiery giving-out department was disconnected with the shop, and that the lad employed there had nothing to do with the hosiery giving-out department, and that there was a man in charge of that. The justices on this evidence dismissed the complaint on its merits, and on the application of the complainant stated the present case.

Morphy, for the complainant; Henry, Q.C., and J. Gallagher, for the defendant.

Cited.—41 Vict. c. 16, s. 68 (4), 93; 54 & 55 Vict. c. 75, s. 27; 50 & 51 Vict. c. 46, s. 13 (2) 59 & 60 Vict. c. 44, s. 10; 58 & 59 Vict. c. 37, s. 42.

Palles, C.B., said that in the view the Court took of the matter it would not be necessary for him to review the facts of the case, or to go through the various Acts and sections cited. The judgment of the Justices was based on two points, and on one of these they were wrong. They had been of opinion that on the construction of section 68, sub-section 4, of 41 Vict. c. 96, the only place in which an inspector could make the enquiries, or the examination mentioned in the section, was in the place where the work was actually given out. In his opinion there was nothing in the section which could restrict its operation in this way. The determination of the magistrates was based on an erroneous view of a matter which was material to the decision of the case, and the Court would, therefore, send the case back to the Justices to proceed therein according to law. It would be sent back, not for a conviction, but for the re-hearing, and the re-determination of the case by the Justices. They would add to the order an expression of the opinion of the Court that sub-section (4) of section 68 of the 41 Vict. c. 16, did not confine

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or restrict the place where the enquiries or examination mentioned in it could be made to that place where the work was actually given out. The Justices would then decide the case having regard to this opinion of the Court. Under all the circumstances of the case, he was of opinion that it was not one in which he should make any order as to costs.

2. Squire v. Sweeney.

HIGH COURT OF JUSTICE IN IRELAND (QUEEN'S BENCH DIVISION—CROWN SIDE),

June 27th, 1900.

Before Palles, C.B., Andrews and Johnson, JJ.

Truck Act, 1831, section 3—Paying a worker otherwise than in current coin of the realm.

[Copy of the Order of the Court.]

Magistrates' case, dated April 30th, 1900, stated by certain of the Justices of the County of Donegal, from the Petty Sessions holden in and for the Petty Sessions District of Dungloe, in said county, on or about the 6th day of March, 1900, setting forth the facts and grounds of their determination dismissing, on the merits, the complaint that defendant, being an employer within the meaning of the Truck Acts, did pay Mrs. Mary McGeehan, an artificer within the meaning of the said Acts, otherwise than in current coin of the realm.

Friday, 22nd.—Mr. E. Morphy (with whom was the Solicitor-General, Q.C.) opens case for appellants.
Tuesday, 26th.—Mr. Morphy continues; Mr. Gallagher (with whom was Sergt. Dodd, Q.C.) heard for respondent; Sergt. Dodd, Q.C., heard on same side.
Wednesday, 27th.—Sergt. Dodd, Q.C., resumes; Mr. E. Morphy heard in reply.

Whereupon, on reading the case stated, and the Court, having heard and determined the question of law arising thereon, is of opinion that the reasons given by the majority of the Justices for their determination are not correct in point of law; but it appearing to the Court that there was not any evidence that said Mary McGeehan was an artificer within the meaning of the 1 & 2 Wm. IV. c. 37, and that the said determination in itself was correct in point of law, and consequently, there not being any evidence sufficient to sustain a conviction, it is therefore considered and adjudged by the Queen's Bench Division here that the said Justices were correct in point of law in their said determination. And the determination of the said Justices in the premises is by the Court now here affirmed.

The respondent to have against the appellant the costs of the argument of this case only (excluding the other proceedings) when taxed by the Master of the Crown Office.

3. Tracey v. Pretty & Sons.

HIGH COURT OF JUSTICE (QUEEN'S BENCH DIVISION), January 11th and 18th, 1901.

Before Lord Alverstone, C.J., Grantham, Bruce, Darling, and Phillimore, JJ.

[1901], 1 Q.B., 444.

Factory Acts—Factory—Provision of sanitary conveniences—Failure of sanitary authority to take proceedings on notice from Factory Inspector—Power of Factory Inspector to make requirement—Jurisdiction of Justices to inquire into sufficiency of sanitary accommodation—Appeal to Quarter Sessions from requirement of Factory Inspector—Public Health Act 1875 (38 & 39 Vict. c. 55), section 38—Factory and Workshop Act, 1878 (41 & 42 Vict. c. 16), section 4—Public Health Acts Amendment Act, 1890 (53 & 54 Vict. c. 59) sections 7, 22—Factory and Workshop Act, 1891 (54 & 55 Vict. c. 75), section 2—Factory and Workshop Act, 1895 (58 & 59 Vict. c. 37), sections 3, 35.

By the Factory and Workshop Act, 1891, *section* 2, *sub-section* 2, *where notice of an act, neglect, or default is given by a factory inspector under section* 4 *of the Factory and Workshop Act*, 1878, *to a sanitary authority, and proceedings are not taken within a reasonable time for punishing or remedying the act, neglect, or default, the inspector may take "the like proceedings for punishing or remedying the same as the sanitary authority might have taken." A factory inspector having given notice to a sanitary authority that there was a deficiency of sanitary accommodation in a certain factory within their district, and the sanitary authority not having taken within a reasonable time any proceedings for punishing or remedying the same, the inspector gave notice to the factory owner under this sub-section and under section* 22 *of the Public Health Acts Amendment Act*, 1890, *which had been adopted in the district, requiring him to erect certain specified sanitary conveniences, and on his neglect to comply with the notice summoned him before justices in petty sessions:—*

Held (*by Lord Alverstone, C.J., Grantham, Bruce, and Darling, JJ., Phillimore, J. dissenting*), *that the Justices had no jurisdiction to inquire into the suitability or sufficiency of the sanitary accommodation existing at the factory, or required by the notice of the inspector.*

Semble, *that an appeal lies to quarter sessions under section* 7 *of the Public Health Acts Amendment Act*, 1890, *from the requirement of the factory inspector in such a case.*

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Case stated by justices of Ipswich, who had dismissed an information and complaint by Anna Tracey, one of Her Majesty's Inspectors of factories and workshops, that the occupiers of a building used as a manufactory situate in the borough, at the said building, on July 16th, 1899, and on divers subsequent days, had unlawfully neglected or refused to comply with the requirements of a certain notice in writing, dated May 15th, 1899, given pursuant to section 2 of the Factory and Workshop Act, 1891, and the Acts amending the same, and to section 22, sub-section 2, of the Public Health Acts Amendment Act, 1890, requiring the occupiers, within two months from the date of such notice, to provide the building with suitable and sufficient accommodation in the way of sanitary conveniences, having regard to the number of persons employed or in attendance at the building, and with proper separate accommodation for persons of each sex, and for that purpose to provide for the use of the females so employed or in attendance eighteen additional water-closets, with proper fittings and appurtenances.

The following facts were proved or admitted:—The respondents were the occupiers of the building which was used as a corset factory. The Public Health Acts Amendment Act, 1890, had been adopted in the borough of Ipswich. The building in question was a factory within the meaning of the Factory and Workshop Acts, 1878 to 1895, and was situate within the sanitary district of the Ipswich urban sanitary authority. The appellant was an inspector under the Factory and Workshop Acts, 1878 to 1895. The notice prescribed by section 4 of the Factory and Workshop Act, 1878, was given to the sanitary authority by means of a letter dated March 2nd, 1899, of which, so far as material, the following is a copy: "I beg to inform you that on visiting the corset factory occupied by Messrs. Pretty & Sons, and situated at Tower Ramparts, Ipswich, the undermentioned sanitary matters appear to require attention:—Insufficient sanitary accommodation provided for women—730 women when visited; full number, 1,000. Fourteen sanitary conveniences provided." It appeared to the appellant that the acts, neglects, and defaults alleged in the letter of March 2nd, 1899, were punishable or remediable under the laws relating to public health, but not under the Factory and Workshop Act, 1878. Proceedings were not taken by the sanitary authority upon the notice, so far as it related to the alleged insufficiency of sanitary accommodation for women, against the owners or occupiers of the factory. It appeared to the appellant that the provisions of section 22, sub-section 1, of the Public Health Acts Amendment Act, 1890, were not complied with on May 15th, 1899, in the case of the factory. The appellant gave a written notice to the respondents, the occupiers of the factory, of which the following is a copy:—

"Factory Department, Home Office, London, S.W.

"I, the undersigned, one of Her Majesty's Inspectors of factories, acting in pursuance of section 4 of the Factory and Workshop Act, 1878, section 2 of the Factory and Workshop Act, 1891, and section 3 of the Factory and Workshop Act, 1895, hereby give you notice under section 22, sub-section 2, of the Public Health Acts Amendment Act, 1890, that the provisions of section 22, sub-section 1, of that Act are not complied with in the building of which you are occupier, used as a manufactory, and situated at Tower Ramparts, Ipswich, the same being a factory within the meaning of the Factory and Workshop Act, 1878; and I hereby require you, within two calendar months from the date of this notice, to provide the said building with sufficient and suitable accommodation in the way of sanitary conveniences, having regard to the number of persons employed or in attendance at the said building, and with proper separate accommodation for persons of each sex, and for that purpose to provide for the use of the females so employed or in attendance eighteen additional water-closets, with proper fittings and appurtenances. If you neglect or refuse to comply with this notice you will be liable for such default to a penalty not exceeding £20, and to a daily penalty not exceeding 40s., and proceedings will be taken in pursuance of the said section 22 of the Public Health Acts Amendment Act, 1890, to recover the same.

"ANNA TRACEY.

"To Messrs. Pretty & Sons, Limited,
"May 15th, 1899."

The respondents neglected or refused to comply with the last-mentioned notice.

On behalf of the appellant it was contended on the above stated facts that the court of summary jurisdiction had no jurisdiction to hear evidence upon or decide the question of the suitability or sufficiency of the accommodation in the way of sanitary conveniences existing in the factory, or the necessity for the further accommodation required by the notice dated May 15th, 1899, and that these questions were by law left to the discretion of the appellant. On behalf of the respondents it was contended that the matters were questions of fact which the justices had jurisdiction to decide upon evidence to be given before them.

The justices decided in favour of the contentions of the respondents, and accordingly heard evidence on behalf of the appellant and the respondents, and upon that evidence dismissed the summons and ordered the appellant to pay £6 4s. costs. The justices found as facts: (1) That the existing sanitary accommodation in the factory was suitable and sufficient; (2) That the sanitary authority had made all due inquiry into the suitability and sufficiency of the sanitary accommodation existing in the factory, and had found the accommodation to be suitable and sufficient. The question for the opinion of the Court was whether the justices had jurisdiction to hear evidence upon or decide the question of suitability or sufficiency of the accommodation existing in the factory, or required by the notice.*

* By the Public Health Act, 1875 (38 & 39 Vict. c. 55), section 38, "Where it appears to any local authority by the report of their surveyor that any house is used or intended to be used as a factory or building in which persons of both sexes are employed or intended to be employed at one time in any manufacture, trade, or business, the local authority may, if they think fit, by written notice, require the owner or occupier of such house within the time therein specified, to construct a sufficient number of water-closets, earth-closets, or privies and ashpits for the separate use of each sex. Any person who neglects or refuses to comply with any such notice shall be liable for each default to a penalty not exceeding £20, and to a further penalty not exceeding 40s. for every day during which the default is continued."

By the Factory and Workshop Act, 1878 (41 & 42 Vict. c. 16), section 4, "Where it appears to an Inspector under this Act that any act, neglect, or default in relation to any drain, water-closet, earth-closet, privy, ashpit, water

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The Attorney-General (Sir R. B. Finlay, Q.C.), (H. Sutton and R. D. Muir with him), for the appellant.—The justices had no jurisdiction to enquire into the sufficiency of the sanitary accommodation nor into the necessity for the requirement; as to that the Factory Inspector is the sole judge, subject to an appeal from the requirement to quarter sessions. The course of proceedings followed by the Inspector in this case was first to give notice to the sanitary authority that the accommodation in the way of sanitary conveniences as prescribed by section 4 of the Factory and Workshop Act, 1878, at the factory was insufficient. That notice left the duty of inquiry and taking action to the sanitary authority. As the sanitary authority took no steps in the matter, the Factory Inspector then acted under section 2 of the Factory and Workshop Act, 1891, and made the requirement contained in the letter of May 15th on the respondents. The Public Health Acts Amendment Act, 1890, having been adopted in the borough, section 38 of the Public Health Act, 1875, is repealed, and the only proceedings which can be taken by the sanitary authority are under section 22 of the later Act. The requirement of the sanitary authority under that Act was by section 7, made subject to an appeal to quarter sessions; and as the power given to the Factory Inspector by the Act of 1891 is a power to take the like proceedings, those words would make the requirement given by the Factory Inspector also subject to an appeal to quarter sessions. No such appeal having been made, there is no power to go behind the requirement before the justices.

Macmorran, Q.C. (E. E. Wild with him), for the respondents.—In proceedings taken under section 38 of the Public Health Act, 1875, the justices could inquire into the sufficiency of the accommodation provided (Hargreaves *v.* Taylor;* St. Luke's Vestry *v.* Lewis†). The only cases were they could not do so was where, under section 268 of that Act, there was an appeal to the Local Government Board. There is no appeal to the Local Government Board in proceedings under section 22 of the Act of 1890, the only appeal being to quarter sessions under section 7. Section 4 of the Factory Act, 1878, had no application to section 38 of the Public Health Act, 1875. Where the Act of 1890 has not been adopted the old proceedings under the Public Health Act, 1875, must be taken, and the factory owner would be able to raise all these questions. Can it be that where, as here, the Act has been adopted he has no such rights? Secondly, there has been here no act, neglect, or default in relation to a water-closet which would entitle the Factory Inspector to act under section 4 of the Factory Act, 1878. The mere neglect to provide sufficient water-closets is not a "neglect in relation to any water-closet."

It cannot have been intended that the Factory Inspector should override the considered decision of the sanitary authority, who may have decided that it would not be just to take proceedings to punish the factory owner. They have "taken proceedings" within the meaning of the section if they have considered the matter and decided against the Factory Inspector. Section 7 only gives an appeal to quarter sessions from the requirement of a local authority, and it would be straining language to make that section give an appeal from the requirement of a Factory Inspector.

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supply, nuisance, or other matter in a factory or workshop is punishable or remediable under the law relating to public health, but not under this Act, that Inspector shall give notice in writing of such act, neglect, or default to the sanitary authority in whose district the factory or workshop is situate; and it shall be the duty of the sanitary authority to make such inquiry into the subject of the notice, and take such action thereon, as to that authority may seem proper for the purpose of enforcing the law. . . . ."

By the Public Health Acts Amendment Act, 1890 (53 & 54 Vict. c. 59), section 7, "(1.) Any person aggrieved—(*a*) by any order, judgment, determination, or requirement of a local authority under this Act; (*b*) by the withholding of any order, certificate, licence, consent, or approval, which may be made, granted, or given by a local authority under this Act; (*c*) by any conviction or order of a court of summary jurisdiction under any provision of this Act—may appeal in manner provided by the Summary Jurisdiction Acts to a court of quarter sessions. (2.) This section shall not apply in cases where there is an appeal to the Local Government Board under section 268 of the Public Health Act, 1875."

By section 22, "(1.) Every building used as a workshop or manufactory, or where persons are employed or intended to be employed in any trade or business, whether erected before or after the adoption of this part of this Act, in any district, shall be provided with sufficient and suitable accommodation in the way of sanitary conveniences, having regard to the number of persons employed in, or in attendance at, such building, and also where persons of both sexes are employed or intended to be employed or in attendance, with proper separate accommodation for persons of each sex. (2.) Where it appears to an urban authority on the report of their surveyor that the provisions of this section are not complied with in the case of any building the urban authority may, if they think fit, by written notice, require the owner or occupier of any such building to make such alterations and additions therein as may be required to give such sufficient, suitable, and proper accommodation as aforesaid. (3.) Any person who neglects or refuses to comply with any such notice shall be liable for such default to a penalty not exceeding £20, and to a daily penalty not exceeding 40*s*. (4.) Where this section is in force section 38 of the Public Health Act, 1875, shall be repealed."

By the Factory and Workshop Act, 1891 (54 & 55 Vict. c. 75), section 2, "(1.) Section 4 of the principal Act shall apply to workshops conducted on the system of not employing any child, young person, or woman therein, and to laundries. (2.) Where notice of an act, neglect, or default is given by an Inspector under the said section 4 as amended by this Act to a sanitary authority, and proceedings are not taken within a reasonable time for punishing or remedying the act, neglect, or default, the Inspector may take the like proceedings for punishing or remedying the same as the sanitary authority might have taken, and shall be entitled to recover from the sanitary authority all such expenses in and about the proceedings as the Inspector incurs and are not recovered from any other person, and have not been incurred in any unsuccessful proceedings."

By the Factory and Workshop Act, 1895 (58 & 59 Vict. c. 37), section 3, "(1.) Where notice of an act, neglect, or default is given by an Inspector under section 4 of the principal Act to a sanitary authority it shall be the duty of the sanitary authority to inform the Inspector of the proceedings taken in consequence of the notice. (2.) In section 2 of the Act of 1891 for the words 'within a reasonable time' shall be substituted the words 'within one month.'"

By section 35, "(1.) In every place where section 22 of the Public Health Acts Amendment Act, 1890, is not in force every factory or workshop shall be provided with sufficient and suitable accommodation in the way of sanitary conveniences, having regard to the number of persons employed in or in attendance at the factory or workshop, and also where persons of both sexes are employed or intended to be employed, or in attendance, with proper separate accommodation for persons of each sex. (2.) A factory or workshop in which there is a contravention of this section shall be deemed not to be kept in conformity with the principal Act.

* (1863) 3 B. & S. 613. † (1862) 1 B. & S. 865

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The Attorney-General, in reply.—There is no hardship in saying that the question of the sufficiency of the accommodation provided cannot be inquired into by the justices (Hargreaves *v.* Taylor* ; Bogle *v.* Sherborne Local Board† ; Robinson *v.* Sunderland Corporation‡ ; Stroud *v.* Wandsworth Board of Works§).

Cur. adv. vult.

January 18th, Lord Alverstone, C.J., read the following judgment:—This case raises, in my opinion, questions of very considerable difficulty, and I express my judgment with great hesitation. After the best consideration I can give I have, however, come to the conclusion that the appellant is entitled to judgment. The substantial question which arises is whether upon a summons for penalties under sub-section 3 of section 22 of the Public Health Acts Amendment Act, 1890, for neglect to comply with a notice given by a Factory Inspector, it is competent for the magistrates to receive evidence upon the merits as to the necessity for the sanitary accommodation required by such notice. The difficulty arises from the fact that the powers of the Factory Inspector in the matter are given by reference to the powers of the sanitary authority under the Public Health Act; and we have to determine to what extent the powers of the sanitary authority are transferred under the general words used. Certain other incidental points arise which I will consider in the course of my judgment. In dealing with cases of legislation by reference, I think that, as a rule, the primary consideration to be kept in view is the general scope and object of the amending legislation, as this affords some guide as to whether a wide or narrow interpretation is to be put upon general words or expressions capable of a wider or narrower meaning. By the 4th section of the Factory and Workshop Act, 1878, it is provided that where it appears to an Inspector under the Act that any neglect or default in relation to any water-closet, earth-closet, or other matter in the factory or workshop is punishable or remediable under the law relating to public health, and not under the Factory and Workshop Act, 1878, the Inspector shall give notice in writing of such act, neglect, or default to the sanitary authority of the district, and it shall be the duty of the sanitary authority to make such inquiry into the subject of the notice and take such action thereon as to the authority may seem proper for the purpose of enforcing the law. By the same section it is provided that an Inspector under the Act may, for the purposes of the section, take with him to the factory a medical officer of health, inspector of nuisances, or other officer of the sanitary authority. The material provisions of the law relating to public health which were in force at that time, namely, at the passing of the Factory and Workshop Act, 1878, are to be found in sections 35, 36, and 38 of the Public Health Act, 1875. The most material section is the 38th, which provided that, where it appeared to any local authority, by the report of their surveyor that any house was used or intended to be used as a factory in which persons of both sexes were employed, the local authority might, if they thought fit, by written notice require the owner, within a time specified in the notice, to construct a sufficient number of water-closets, earth-closets, or privies for the separate use of each sex. The section provided a penalty for neglect to comply with such notice. No appeal was provided against the requirements of the local authority under this Act. By section 22 of the Public Health Acts Amendment Act, 1890, which is the section under which the question in this case arises, further powers were given to the sanitary authority. Sub-section 1 of that section provides that every building used as a workshop shall be provided with sufficient and suitable accommodation in the way of sanitary conveniences, having regard to the number of persons employed, and also where persons of both sexes are employed, with proper separate accommodation for persons of each sex. It further provides by sub-section 2, that where it appears to an urban authority on the report of their surveyor that the provisions of this section are not complied with, they may, by written notice require the owner or occupier to make such alterations and additions therein as may be required to give such sufficient, suitable, and proper accommodation. Sub-section 3 prescribes a penalty for neglect or refusal to comply with such notice. Pausing for a moment, it was contended on behalf of the respondents that under this section the urban authority could only give a general notice requiring the owner or occupier to provide sufficient and proper accommodation; on behalf of the appellants it was contended that the urban authority must, by the notice, specify the alterations and additions which they require to be made. I think the latter view is correct. The section provides a penalty for neglect or refusal to comply with the notice. It would, I think, be inconsistent with such an enactment that the notice should be in general terms only, as the person to whom it was given would in that case have no means of knowing how he could avoid the liability to a penalty. But in addition, by section 7 of the same Act, an appeal to quarter sessions is given against any requirement of a local authority, and I think that it was intended that on such an appeal not only the question of the necessity for some additional accommodation but also the reasonableness or propriety of the amount of the accommodation required by the notice might be raised. It was further contended before us on behalf of the respondents that section 4 of the Act of 1878 did not apply to this section; that section 4 enabled notice to be given only in the case of some neglect or default in relation to an existing water-closet, earth-closet, privy, or ashpit, and not in relation to alleged insufficiency of accommodation. In my opinion this contention is unsound. I think the Factory Inspector may give notice to the sanitary authority in respect of a neglect by the owner or occupier of a factory to comply with the provisions of sub-section 1 of section 22 of the Act of 1890. I may further point out that this seems to be placed beyond all doubt by the provisions of section 35 of the Factory and Workshop Act, 1895, which provides that in every place where section 22 of the Public Health Acts Amendment Act, 1890, is not in force, every factory or workshop where persons of both sexes are employed shall have separate accommodation, and that a factory or workshop in which there is contravention of this section shall be deemed not to be occupied in conformity with the Factory and Workshop Act, 1878. If section 22 of the Act of 1890 is in force the rights and duties of the parties must be governed by that section. Thus far I have

* 3 B. & S. 613. † (1880) 46 J. P. 675. ‡ [1899] 1 Q. B. 751. § [1894] 2 Q. B. 1.

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only considered the powers which were given to the Factory Inspector to put the sanitary authority in motion; but by sub-section 2 of section 2 of the Act of 1891, under which the particular question in this case arises, it is provided that where notice of an act, neglect, or default is given by the Factory Inspector under section 4 of the Act of 1878 to a sanitary authority, and proceedings are not taken within a reasonable time (fixed by sub-section 2 of section 3 of the Factory and Workshop Act, 1895, at one month) for punishing or remedying the act, neglect, or default, the Inspector may take the like proceedings for punishing or remedying as the sanitary authority might have taken. The question which arises in this case is, whether the words "like proceedings for punishing or remedying" are confined to legal proceedings in respect of the neglect of an owner or occupier to comply with the notice given by an urban authority under sub-section 2 of section 22 of the Public Health Act of 1890, or whether they give the Factory Inspector the right himself to give a notice under sub-section 2 of section 22 of the Act of 1890 requiring alterations and additions to be made. The question is, as I have said, one of very great difficulty. The word "proceedings" is not the word one would have expected to find as applicable to a notice or requirement. Moreover, unless a requirement given by a Factory Inspector is subject to the appeal to quarter sessions, under section 7 of the Act of 1890, as in the case of a requirement by the local authority, I should without hesitation have come to the conclusion that a Factory Inspector was not entitled to give such notice. It seems to me clear that the Legislature could not, without express words, make the opinion of a Factory Inspector as to the amount of accommodation required final and conclusive upon the factory owner or occupier. But the words in sub-section 2 of section 2 of the Act of 1891 are, "the like proceedings for punishing or remedying the same," and unless we hold that the Factory Inspector may give the notice provided by sub-section 2 of section 22 of the Act of 1890, it seems to me that we should be giving no effect to the words "proceedings for remedying" as distinguished from punishing. It is here, I think, that we get assistance in considering what is the general tendency and scope of the legislation. By the Act of 1878 the Factory Inspector could only give notice to the sanitary authority. The sanitary authority could only give a general notice to the factory owner. By the Act of 1890 further powers are given to the sanitary authority, and an appeal is provided against the requirement. Section 2 of the Act of 1891 appears to deal with the case where the sanitary authority for some reason or other does not take sufficient steps to exercise their powers, and I think we can gather from this course of legislation that it was intended to supplement the powers of the sanitary authority by giving the Factory Inspector an independent power of taking proceedings for remedying and punishing in cases in which the sanitary authority neglected to act. It was contended before us by the respondents that no appeal was given in the case of a notice of requirement served by the Factory Inspector. I have already said that if I had come to this conclusion I should not have decided in favour of the appellant; but if the view which I have taken is correct—namely, that the Factory Inspector stands in the place of the local authority for the purpose of giving a notice of requirement under sub-section 2 of section 22 of the Act of 1890—then, in my opinion, the words "like proceedings" would render any such notice the subject of appeal under section 7 of the same Act. If this view be correct, effect would be given to that which I gather to have been the intention of the Legislature without any injustice to the factory or workshop owner. The notice given by the Factory Inspector will be subject to appeal, and, if not appealed against, would have the same effect as a notice given by the sanitary authority. There remains one other contention of the respondents which must be noticed. It was urged that upon the hearing of a summons under sub-section 3 of section 22 of the Act of 1890, founded upon the notice given by the urban sanitary authority or the Factory Inspector, the question of the necessity for, or reasonableness of, the requirements specified in such notice could be examined. That such question cannot be raised in the case of a notice of requirement given by a sanitary authority is, in my opinion, decided not only by the terms of the section itself, but by a long series of decisions referred to by the Attorney-General in reply. Upon such a summons, in my opinion, the only question which could be raised is, whether there has been a neglect or refusal to comply with such notice. Any question as to the validity of the requirements must be raised, if at all, by appeal to quarter sessions. I do not think, moreover, that the argument that there is a distinction in the case of a notice given by the Factory Inspector in this respect can be maintained. It was urged that because such a question would be open, in the case of proceedings taken under section 81 of the Factory and Workshop Act, 1878, in respect of a breach of section 35 of the Factory and Workshop Act, 1895, it ought also to be open in the case of proceedings taken by a Factory Inspector under sub-section 3 of section 22 of the Act of 1890. For the reasons I have given in the earlier part of my judgment I do not think this contention can prevail. I think that if a notice can be given by a Factory Inspector under sub-section 2 of section 22, it has the same effect, if not appealed against for all purposes, as a notice given by the sanitary authority. For the above reasons I am of opinion that judgment should be given for the appellant, and the case remitted to the magistrates.

My brother Darling concurs in this judgment.

Grantham, J., read the following judgment:—Having had the opportunity of reading my Lord's judgment, I should have been ready to accept it, and simply to agree with it; but, as I wrote my judgment last June, I think it is well I should read it, though, it having been written then in the hope of convincing some of my brothers who had not been convinced in the argument of the case, it goes more into detail than I should have thought it necessary to go at the present time.

The difficulty that has arisen in this case in determining the power of Factory Inspectors has been caused entirely by the system unfortunately so often adopted in the present day of legislating by reference to other Acts and by incorporation of sections of earlier Acts of Parliament.

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The references backwards and forwards throughout the Acts and sections of Acts in dispute are most bewildering and perplexing, and I am not surprised that the magistrates misunderstood, as I think they did, their powers in the proceedings when the matter came before them.

If the history of the factory legislation of the nineteenth century is considered, and particularly that of the past twenty or thirty years, it will, I think, be found that the Legislature has advisedly done what it intended to do—namely, gone on step by step in its endeavour to compel the owners of factories to put them in a healthy and sanitary condition. Finding its earliest efforts often frustrated and foiled by the supineness or self-interest of the sanitary authorities, whose aid was first sought to carry out its views, the Legislature has at last adopted more drastic measures; and as the Inspectors have been, in later years at any rate, always selected for this work on account of their special qualifications for it, the Legislature as a last resort has placed the Inspectors in the same position that the sanitary authorities previously occupied, and has given them power to order the necessary work to be done, and, if not done, to enforce the fines leviable for the breaches of the law in failing to obey the Inspector's orders. It should not be forgotten that the experience of Factory Inspectors is gained by their supervision of factories over the whole of England, whereas the surveyor of the local authority in many cases has no experience of this kind whatever, and as the Legislature has given to the sanitary authority (as many legal decisions shew) the absolute discretion of determining whether work is to be done or not subject to the overriding decision of the court of summary jurisdiction, it would be strange indeed if this same power should not be confided to the more experienced Inspector.

Not only is the sanitary Inspector often inexperienced in the special requirements of factories to make them properly healthy and sanitary, but he is sometimes liable to be influenced by the factory owner, who is not infrequently one of the leading magistrates of the borough in which the factory is situate.

Let us see, therefore, whether the sequence of legislation does or does not bear out the views which I have thus far expressed.

The first Factory Act was passed as long ago as 1802 (42 Geo. 3, c. 73). That Act dealt not only with the morals and the religious teaching of those working in factories, but also with the hours of labour and the ventilation and light of the factory. It was, in fact, the foundation of all subsequent factory legislation. It was amended by various subsequent Acts till we come to the Act of 19 & 20 Vict., which incorporated most of the preceding Acts, and was called the Factory Act of 1856; but no sooner was that Act passed than amendments and extensions followed each other in rapid succession, until, after the passing of the Public Health Act, 1875, we come to the Act of 1878, which practically repealed all former Acts, and, codifying as it did the existing legislation, also enlarged the powers of the sanitary authorities, and brought more factories within the purview of the Act. Unfortunately, even in this comprehensive Act of 1878 the Legislature referred back to the Public Health Act of 1875, and incorporated some of its sections instead of making a complete Act.

The Acts now applying to this particular matter commence, therefore, with the Act of 1875, section 38 of which is in these words: [The learned judge read the section, and continued:—]

That Act was extended by the Public Health Act of 1890, section 22 of which is in these words: [The learned judge read the section, and continued:—]

By this 22nd section, therefore, suitable accommodation was to be provided in the way of sanitary conveniences, having regard to the number of persons employed in any factory; and the initiation of proceedings is to be on the report of the surveyor of the urban authority, which authority, by written notice, could require such additions to be made as would provide sufficient accommodation in the factory, the enforcement of their notice being by application for penalties in the usual way.

By these Acts, therefore, the local authority (that is to say the mayor, aldermen, and burgesses in a borough like Ipswich) had power in such a factory as this, by written notice, to compel the owner or occupier for the time being to provide a sufficient number of water-closets for each sex under penalty of a heavy fine for failure to comply with the order. There was no appeal to the magistrates against this order; but, under section 7 of the Public Health Acts Amendment Act, 1890," Any person aggrieved by any order, determination, or requirement" of a local authority under the Act "may appeal in manner provided by the Summary Jurisdiction Acts to a court of quarter sessions."

To enforce the penalty, however, the local authority had to apply to the court of summary jurisdiction, which court had, however, as I have just said, no power to inquire into the merits of the order. By this Act, it will be noted that it was left to the surveyor to the sanitary authority to report to the local authority, and it can well be imagined that the surveyor, an official knowing much, perhaps, of bricks and mortar and of drainage, would know but little of factory requirements; and by the time that the Act of 1878 was passed it was evident that the Legislature had found the surveyor of the local authority was not sufficiently alive to the sanitary deficiencies and requirements of factories, for by the 4th section of the Factory and Workshop Act of 1878 it is expressly provided that it shall be the duty of the Factory Inspector to give notice to the sanitary authority of the neglect or default in the factory. The section reads as follows: [The learned judge read it, and continued:—]

It was evidently found, therefore, that the local surveyor was remiss in giving notice or in initiating these inquiries; so he was supplanted, or, at any rate, the Factory Inspector was given equal powers of initiating proceedings. But it being still hoped that the local sanitary authority would see that proper sanitary requirements were provided when his attention was officially drawn by the Inspector to the omission, the power to compel the owner to remedy the default was still left with the sanitary authority. It is common knowledge, however, that in many

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cases the local sanitary authority for various reasons declined to, or at any rate did not, act, sometimes, no doubt, because the influence of the factory owner was paramount in the borough in which his factory was situated, and sometimes from ignorance. Hence the Legislature had again to make the law more stringent, and the Factory and Workshop Act of 1891 was passed.

Section 2 reads as follows: [The learned judge read the section, and continued:—] In other words, it having been found that the local authority would not do its duty, the Factory Inspector was given an overriding authority to get the work done.

Power is given, it will be noticed, to the Factory Inspector to take the like proceedings as the sanitary authority might have taken where the sanitary authority had not taken proceedings within a reasonable time to remedy the default previously notified to him. To find out the powers, therefore, that the Factory Inspector now possesses, we have only to refer back to the previous Acts to see what powers the sanitary authority previously possessed. Now, by the Public Health Act of 1875 and the Factory and Workshop Act, 1878, the local authority had power to order certain work to be done, and, the order being made, the magistrates had no power of inquiring into the reasonableness or not of the order, though the court of quarter sessions had; yet it is said when the Factory Inspector gives the order the magistrates have power to inquire into its reasonableness. In other words, it is said that the superior authority is to have less power than the inferior. The increased powers of the Inspector do not end here, however, for the sanitary authorities having evidently excused themselves from carrying out the requirements of the Inspector on the ground that a reasonable time had not elapsed to enable them to do so, an Act was passed by which they were to take these proceedings within a month instead of within a reasonable time, and, in order that they should not keep the Inspectors in the dark as to their intentions, they were also bound to give notice to the Inspector of the proceedings they were taking. The section reads thus: [The learned judge read section 3 of the Factory and Workshop Act, 1895, and continued:—] What proceedings? How can it be said that "proceedings" meant or would include deliberations—deliberations perhaps resulting in the determination not to proceed? The proceedings referred to seem to me to be clearly proceedings to remedy the neglect or default—in fact, the notice to provide the required accommodation. What better language could the Legislature have adopted if it intended to give the Factory Inspectors the power it purports to give them; and I think did give them? Whether it gave them rightly or not is no question for us, as we have only to determine whether the power was given or not; but as it might perhaps be suggested that the Legislature could not have intended to give equal powers to the female Factory Inspectors as it had given to local surveyors and sanitary authorities, I may add that as their experience is gained, like that of male inspectors, from a much wider area—namely, all the factories of England—than that of the local authority, whose experience is very likely limited to the one factory in his town, their knowledge, in my judgment, is likely to be much more valuable and reliable than that of any local authority, or of the local surveyor of any borough in England.

When the case was first argued before my brother Channell and me, I stated that I was of opinion that the order of the Factory Inspector was subject to the appeal to quarter sessions given to any person aggrieved by an order of a local authority, because the Factory Inspector has to take like proceedings as the local authority. I am of the same opinion now. But that is not the question we have to determine, which is whether or not the court of summary jurisdiction has power to inquire into the reasonableness of the order of the Factory Inspector. But as the question of whether "like proceedings" included the like liability to appeal to quarter sessions was not argued out as if it had been the question in dispute, I do not wish to be bound as if I had given judgment on that question.

If it was necessary to shew the reasonableness of the requirements of the Inspector and the ignorance of magistrates of the usual accommodation provided in factories, I might add that by a report I have before me I find that whereas one water-closet for every seventy persons was considered by the magistrates sufficient in this case, yet in London and all the principal towns in England one in twenty to one in thirty is the minimum number provided.

With regard to the last part of sub-section 2 of section 2 of the Factory and Workshop Act, 1891, as to the right of recovering expenses incurred by Factory Inspectors in taking proceedings being limited to expenses not incurred in any unsuccessful proceeding, I do not feel the same difficulty that some of my brothers have felt. The word "proceedings" is not limited to legal or magisterial proceedings, but includes proceedings taken to remedy defaults (the same that the sanitary authority might have taken), *i.e.*, it may include the carrying out of structural alterations or methods adopted to remedy defects under other sections of the Acts. These alterations or methods may be unsuccessful to remedy the particular defect complained of, and, therefore, it would be unfair to make the owner of the factory pay for them, and to avoid that unfairness these words have been, it seems to me, inserted. But as I said as to the appeal to quarter sessions, that is not the question we have to determine, and I give no opinion upon it.

For these reasons, in my judgment, the case must go back to the magistrates and their decision must be quashed, on the ground that they had no power to decide as to sufficiency or suitableness of the accommodation.

Bruce, J., read the following judgment:—I am of opinion that the judgment of the Court should be for the appellant.

I think that the justices had no jurisdiction to hear evidence upon or to decide the question of the suitability or sufficiency of the accommodation existing in the factory. The offence charged is an offence against the provisions of the Public Health Acts Amendment Act, 1890, section 22. One difficulty in the case arises from the circumstance that the alleged offence is an offence against the provisions contained in one of the Public Health Acts, while in order to ascertain the method of procedure to be adopted reference must be made to the provisions of the Factory Acts.

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It is a little difficult to fit together the two series of enactments. But the best way of arriving at a right conclusion is to consider the various provisions one by one.

The section I have already mentioned—section 22 of the Public Health Acts Amendment Act, 1890—is the first to be considered, and I think that the ultimate decision in the case must depend to a large extent upon the construction of that section. The section requires by its 1st sub-section that every building used as a workshop shall be provided with sufficient accommodation in the way of sanitary conveniences. The 2nd sub-section enacts that, where it appears to an urban authority on the report of their surveyor that the provisions of the section are not complied with in the case of any building, the urban authority may, if they think fit, by written notice require the owner or occupier of any such building to make such alterations and additions therein as may be required to give such suitable accommodation as aforesaid. The 3rd sub-section enacts that any person who neglects or refuses to comply with any such notice shall be liable for each default to a penalty not exceeding £20, and to a daily penalty not exceeding 40*s*. This section is similar in terms to section 38 of the Public Health Act, 1875, and, accordingly, it is enacted by the 4th sub-section of the section we have been considering that where that section is in force (and it is in force in the urban district in which the factory in question is situated) section 38 of the Public Health Act, 1875, shall be repealed.

The construction of section 22 demands consideration. I think that the written notice mentioned in the section means a notice to make such alterations and additions as may be required by the notice. The section does not, I think, point to a notice in general terms stating that the provisions of the section are not complied with, but it points to a specific notice stating the particular alterations and additions which the urban authority on the report of their surveyor require. If the notice were not a specific notice, it would be unreasonable to make a person neglecting to comply with it subject to a daily penalty, because, if the notice were only a general notice, the person to whom it was given might not know what were the requirements of the urban authority. I think that this view of section 22 is supported by the decision of this Court in Bogle *v.* Sherborne Local Board.* That was a decision upon section 36 of the Public Health Act, 1875. The words of that section are not the same as the words in the section now under consideration, but the general scheme of the two sections is the same. The Court held that the requirement of a written notice given under section 36 of the Public Health Act, 1875, was conclusive upon the justices, and could only be inquired into on appeal to the Local Government Board under section 268 of the Public Health Act, 1875. The remedy of a person who is aggrieved by any "requirement" of a local authority under the Public Health Acts Amendment Act, 1890, is given by section 7 of that Act by way of appeal to a court of quarter sessions in cases where there is no appeal to the Local Government Board under section 268 of the Public Health Act, 1875.

As a breach of a "requirement" under section 22 of the Public Health Acts Amendment Act, 1890, involves penalties only, and does not involve the recovery of expenses incurred by the local authority, such as are mentioned in section 268 above referred to, the appeal is, I think, to quarter sessions, and not to the Local Government Board.

I may observe that the very circumstance that an appeal is given to a person aggrieved by a "requirement" of a local authority seems to me to imply that such requirement is treated by the Legislature as an act in the nature of a judgment, order, or determination, which can only be called in question before the appellate tribunal.

I have not overlooked the circumstance that the 22nd section which I have been considering contemplates proceedings instituted by the urban authority on the report of their own surveyor, and not on the report of a Factory Inspector; and section 38 of the Public Health Act, 1875, which was in force prior to its qualified repeal above mentioned by section 22 of the Public Health Acts Amendment Act, 1890, was to the same effect.

In the year 1878 the Legislature, I suppose because it found the surveyors of local authorities slow to act under the powers conferred upon them by section 38 of the Public Health Act, 1875, thought fit to confer upon an Inspector of Factories a power similar to that which had been conferred upon the surveyor of a local authority; and by section 4 of the Factory and Workshop Act, 1878, it is provided that where it appears to an Inspector under that Act that any act, neglect, or default in relation to any drain, water-closet, nuisance, or other matter in a factory is punishable or remediable under the law relating to public health, but not under that Act, the Inspector shall give notice in writing of such act, neglect, or default to the sanitary authority in whose district the factory or workshop is situate, and it shall be the duty of the sanitary authority to make such inquiry into the subject of the notice and take such action thereon as to that authority may seem proper for the purpose of enforcing the law. Under this section the sanitary authority is authorized to take proceedings under the Public Health Act on the report of a Factory Inspector. What proceedings are they to take? I think section 4 of the Act of 1878 points to a proceeding in the nature of a written notice requiring the owners to construct such number of water-closets, earth-closets, or privies for the separate use of each sex as might be required in the notice to be given under section 38 of the Public Health Act, 1875. That section, as I have already pointed out, is now repealed by section 22 of the Public Health Acts Amendment Act, 1890, and it is only necessary to refer to it in order to ascertain the character of the proceedings contemplated by section 4 of the Factory and Workshop Act, 1878. I have not critically examined section 38 because, so far as relates to the present case, it is repealed, and is superseded by the provisions of section 22 of the Public Health Acts Amendment Act, 1890. But I may observe in passing that, so far as the construction of section 38 of the Act of 1875 is concerned, the observations that I made upon

* 46 J. P. 675.

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the construction of section 22 of the Public Health Acts Amendment Act, 1890, seem to me to apply, that the requirement contained in the written notice mentioned in section 38 of the Public Health Act, 1875, could not be inquired into by the justices at petty sessions. The person upon whom the requirement was made had, if ordered by the justices to pay a penalty, a right of appeal against the order of the justices under section 269 of the Public Health Act, 1875; but whether on such appeal the reasonableness of the requirement could be inquired into is, I think, exceedingly doubtful. Probably it could not; but it is not necessary to determine that question, because it is quite clear that section 7 of the Public Health Acts Amendment Act, 1890, gives a direct appeal from the requirement of a local authority.

So far as I have proceeded in examining the Acts of the Legislature they amount to this. By section 38 of the Public Health Act, 1875, a local authority, including an urban authority, was enabled, upon the report of their surveyor, by written notice to require a specified number of water-closets to be constructed in a factory within their jurisdiction: that requirement, if made, was conclusive upon the justices at petty sessions, who, in the case of a breach of the requirement, had jurisdiction only to adjudicate upon the penalties to be imposed. By the Factory and Workshop Act, 1878, section 4, the local authority might be set in motion by a Factory Inspector, in which case they were empowered to take the same proceedings as if they had been set in motion by their own surveyor; and by the Public Health Acts Amendment Act, 1890, the provisions of section 38 of the Public Health Act, 1875, are repealed in districts in which the Public Health Acts Amendment Act, 1890, is in force, and its provisions are re-enacted in slightly different words.

Having regard to the difficulty that might arise as to whether an appeal would lie from the order of justices enforcing a penalty for breach of a requirement made by the urban authority to quarter sessions under section 269 of the Public Health Act, 1875, an express provision was inserted in section 7 of the Public Health Acts Amendment Act, 1890, that an appeal should lie direct from a requirement of a local authority to a court of quarter sessions. But it is to be observed that in all these cases the local authority or urban authority had a discretion as to whether they would take proceedings or not. They were bound to make inquiry; but they might if they pleased have refused to act upon the report of their own surveyor, or upon the report of the Factory Inspector. Apparently, in the opinion of the Legislature, the local authorities had been reluctant to act upon the report of Factory Inspectors in cases where proceedings ought to have been taken for punishing or remedying acts, neglects, or defaults under the Public Health Acts. Accordingly, by section 2 of the Factory and Workshop Act, 1891, it is enacted that where notice of an act, neglect, or default is given by an Inspector under section 4 of the Factory and Workshop Act, 1878, to a sanitary authority, and proceedings are not taken within a reasonable time (that is, within one month: Factory and Workshop Act, 1895, section 3) for punishing or remedying the act, neglect, or default, the Inspector may take the like proceedings for punishing or remedying the same as the sanitary authority might have taken. What steps could the sanitary authority have taken for punishing or remedying the act, neglect, or default mentioned in the notice given by the Inspector? They could have proceeded only under section 22 of the Public Health Acts Amendment Act, 1890, by serving a written requirement upon the owner or occupier, and in the event of the requirement not being complied with, proceeding before the justices to enforce penalties. If I am right in the conclusion which I have expressed, that the written requirement of the urban authority was, subject to an appeal to quarter sessions, conclusive as to the requirements contained in it, it seems to me to follow that when the Legislature conferred upon the Inspector power to take like proceedings for punishing or remedying the act, neglect, or default, the written requirement of the Inspector was intended to have and does have the same force and effect as if the written requirement had been made by the urban authority. I can give no other meaning to the words "like proceedings." If the urban authority do not act within one month after notice of an act, neglect, or default is given by the Inspector, then the Inspector shall be armed with their powers; he is put into their place, and may take proceedings for punishing and remedying the act, neglect, or default the same in character as the sanitary authority might have taken.

Of course, the act, neglect, or default must be a real act, neglect, or default; but the question is who is to determine whether an act, neglect, or default exists, and, if it exists, how it is to be remedied. I think this power is conferred upon the Factory Inspector subject to the right of appeal to quarter sessions against his requirement. I think the appeal must exist from the requirement of the Inspector just as an appeal might be brought from the requirement of the urban authority, if they had by written notice made a requirement. When section 2 of the Factory and Workshop Act, 1891, enables the Inspector to take the like proceedings as the sanitary authority might have taken, I think that means proceedings subject to the same conditions and the same right of appeal as proceedings taken by the sanitary authority. To hold otherwise would be to make the proceedings taken by the Inspector different in character from proceedings taken by the urban authority, and to confer upon the Inspector more absolute powers than those conferred upon the urban authority. The decision of the Court of Appeal in the case of The Ganges* is in point. By the County Courts Admiralty Jurisdiction Act, 1868, section 25, it was enacted that the Court of Passage of Liverpool should, upon an Order in Council being made, have in Admiralty matters the like jurisdiction, powers, and authorities as were conferred upon the county court. No express provision was made for an appeal from the Passage Court. Yet it was held that the words "like jurisdiction" gave the same right of appeal from the Pass age Court as existed from a county court in an Admiralty matter—that is, an appeal, not to the Court of Queen's Bench, but to the Court of Admiralty. I see nothing unreasonable in the construction which I think ought to be put upon the statutes. A Factory Inspector ought to be competent to determine such a question as the number of water-closets

* (1880) 5 P. D. 247.

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required for the women employed in a particular factory; and, having regard to the fact that in many urban districts owners of factories are largely represented on the borough bench, the Legislature may have had good reason for allowing the appeal to be made from the "requirement" of an Inspector to the quarter sessions and not to petty sessions.

Phillimore, J., read the following judgment:—This case has stood for argument three times. On the first occasion it was heard by my brothers Grantham and Channell, and I believe they differed in opinion. The second hearing was before the late Lord Chief Justice, my brothers Grantham, Bruce, and Darling and myself. At the close of this argument my opinion was in favour of the respondents. As to my colleagues, I will only say this, that if I had then stood alone there would have been no necessity for a third argument.

Now, however, after the third hearing, I understand that my Lord and my brothers who with me formed the third Court are in favour of the appellant, and it is only necessary to state as briefly as I can why I still remain of opinion in favour of the respondents.

I agree with some of the contentions put forward on behalf of the appellant. I think that an urban sanitary authority can, "when it appears" to such authority, on the report of its surveyor, that the sanitary accommodation is insufficient, make a requirement which is in substance a judgment, and which, subject to appeal to quarter sessions, is conclusive, compelling the factory owners to provide further specified accommodation under penalties; and, which is the same thing, that, upon a summons for disobedience to such a requirement, the justices have no power to inquire into the reasonableness of the requirement, but only whether it was in fact made, and whether it has or has not been complied with (53 & 54 Vict. c. 59, s. 22). I think, further, that a Factory Inspector, "when it appears" to him or her—the same phrase "when it appears" being again used—may give a notice to the urban sanitary authority complaining of "any act, neglect, or default in relation to any . . . . water-closet" (41 & 42 Vict. c. 16, s. 4), and that a deficiency of water-closets is a neglect or default in relation to a water-closet, though the respondents contended otherwise; and that if the urban sanitary authority does not take within a month proceedings "for punishing or remedying the neglect or default," if neglect or default in fact there be, the Factory Inspector has power to make that final requirement under a penalty which the urban sanitary authority ought to have made, and in due time to issue a summons to enforce it. In conceding this last point to the argument of the appellant, I believe I am going further than a weighty authority would go. But I think upon the whole it is right.

There, however, I stop. Primarily, it is the function of the judicial tribunal upon a summons for an offence to determine upon all the elements which go to make up the alleged offence. Express words are needed to withdraw any part of the alleged offence from the determination of the tribunal. In cases under the Sanitary Acts it is often the fact that some part of the case is withdrawn from the justices and given to be decided by the sanitary authority. The Legislature has so provided, and has used apt words for the purpose, saying, not "where so and so is the case," which would leave the point to the tribunal, but "where it appears to the authority that so and so is the case," which leaves the point to the authority.

There is, however, no rule of law that in all Sanitary Acts the sanitary requirement must be left to the sanitary authority to determine upon. If the Legislature ceases to use apt words for the purpose, the sanitary authority does not get the power. In this very matter it is conceded that a rural sanitary authority would have no such power (58 & 59 Vict. c. 37, s. 35).

Now, "when it appears" to the urban sanitary authority it may make a requirement, "when it appears" to the Inspector he may give a notice, but when he desires to issue a requirement the condition precedent is that he shall have given notice, not of what appeared to him to be an act, neglect, or default, but of what really was an act, neglect, or default (54 & 55 Vict. c. 75, s. 2.) Again, what passes to him? The power of punishing or remedying—what? An imaginary or constructive act, neglect, or default? No. A real act, neglect, or default. If there is no such real act, neglect, or default, there is nothing to punish or remedy.

There is no trace of any provision anywhere making the opinion of the Inspector conclusive, and direct legislation is required to make it so. In other words the Factory Inspector can in certain circumstances make a requirement which the factory owner will neglect at his peril; but just as the Inspector cannot require till he has given notice to the urban sanitary authority and waited a month, so he cannot require unless in fact there is a real act, neglect, or default; and just as he must prove his notice and his month before the justices, so must he prove the act, neglect, or default. If he does the factory owner will be in peril, for the penalty will begin from the date fixed in the requirement, and not from the date of the conviction by the justices. This is my view after consideration of the language of the several Acts.

I may add that I venture to think this conclusion gives considerable power to the Inspector, and if open to some practical objections is not so objectionable as the other. In the first place, it would be monstrous to let a single Factory Inspector determine such a point without appeal, more especially as he is not apparently bound to hear the factory owners before making the requirement. I understand that the majority of my colleagues agree that that would be monstrous, but think that by implication there must be an appeal from the Inspector to quarter sessions. I am glad that they so think, and I do not dissent. But, secondly, what is the use of bringing in the urban sanitary authority if it is merely to be given a chance to comply with the Inspector's mandate, with the knowledge that if it does not it will be overruled and brought into contempt? And why interpose a month's delay for pure form's sake in what may be an urgent matter? If the Inspector is really to determine, let him do so at once. Thirdly, I can understand that if the urban sanitary authority should be supine it may be desirable to allow some other authority to do that which no member of the public could do—namely, prosecute, and thus submit the decision to a third body, the justices. But why let

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the single Inspector overrule the whole sanitary committee and its surveyor? Again, there may be reasons for giving less power to a rural than to an urban sanitary authority; but the Inspector is the same Inspector in rural as in urban districts. In a rural district he, even if he acts with the rural sanitary authority, cannot decide; he can only prosecute. In urban sanitary districts he is to be allowed to decide, and to do this by overruling the apparently more important body. Upon the whole I should conclude in favour of the respondents, and say that the justices were right in admitting evidence to shew that there was, in fact, no neglect or default on the part of the factory owners.

Appeal allowed. Case remitted to justices.

Solicitor for appellant, the Solicitor to the Treasury; solicitor for respondent, Percy Gates (for G. C. Bantoft, Ipswich).

A. P. P. K.

4. Hoare v. Ritchie & Son.

HIGH COURT OF JUSTICE (QUEEN'S BENCH DIVISION), January 22nd, 1901.

Before Bruce and Phillimore, JJ.

[1901], 1 Q.B. 434.

Factory Acts — Factory — Ventilation — Dust generated and inhaled by Workers to injurious extent—No evidence of actual injury—Factory and Workshop Act, 1878 (41 & 42 Vict. c. 16), section 36.

By section 36 of the Factory and Workshop Act, 1878, where in any factory a process is carried on by which dust is "generated and inhaled by the workers to an injurious extent," the factory inspector has power to require a fan or other means of ventilation to be provided. In proceedings under this section—

Held, *that it was not necessary to prove that any worker had sustained actual injury from inhaling the dust, but that it was sufficient if it was proved that dust was generated and inhaled by the workers to an extent that must in the long run be injurious.*

Case stated by a metropolitan police magistrate under the Summary Jurisdiction Acts.

An information was laid by the appellant (who was one of Her Majesty's Inspectors of Factories) under section 36 of the Factory and Workshop Act, 1878, as extended by section 33 of the Factory and Workshop Act, 1895, which alleged that the respondents, being the occupiers of a certain jute mill—the same being a factory within the meaning of the Factory and Workshop Acts, 1878 to 1895—wherein, on or about May 18th, 1900, an impurity, to wit dust, was generated and inhaled by the workers to an injurious extent, did fail to provide, use, and maintain a fan or other mechanical means of a proper construction for preventing such inhalation within a reasonable time after due notice had been given by the appellant.

The following facts were proved:—

"The respondents are the occupiers of a jute mill at Carpenter's Road, Stratford, in the county borough of West Ham, the same being a factory within the meaning of the Factory and Workshop Acts. In 'preparing' and 'batching' rooms in the said factory during the month of April, 1900, dust in large quantities was generated by the process there carried on. This dust consisted of jute fibre mixed with a small quantity of common dust. There was nothing of a poisonous character in the dust. The use of fans as recommended by the appellant would reduce the amount of dust in the atmosphere inhaled by the workers. On April 17th notice to provide such fans within one month was duly served on the respondents by the appellant, but the respondents failed to comply therewith.

"Some one hundred and twenty persons are employed in the rooms in question. Of these, several selected by the appellant were medically examined on his behalf. Several more, also selected by the appellant, were called as witnesses. The evidence, however, failed to prove that any of the workers had suffered any injury to their health from inhaling the dust generated by the process there carried on. The appellant contended that dust in large quantities in the atmosphere must be injurious to the workers, and that it was not necessary to prove that any of the workers had actually suffered injury to health."

The magistrate dismissed the summons on the ground that it had not been proved that the dust generated by the process had been inhaled by the workers to an injurious extent, but stated this case for the opinion of the Court.*

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* By the Factory and Workshop Act, 1878 (41 & 42 Vict. c. 16), section 36, "If in a factory or workshop where . . . . any process is carried on by which dust is generated and inhaled by the workers to an injurious extent it appears to an Inspector that such inhalation could be to a great extent prevented by the use of a fan or other mechanical means, the Inspector may direct a fan or other mechanical means of a proper construction for preventing such inhalation to be provided within a reasonable time; and if the same is not provided, maintained, and used, the factory or workshop shall be deemed not to be kept in conformity with this Act."

By the Factory and Workshop Act, 1895 (58 & 59 Vict. c. 37), section 33, "Section 36 of the principal Act shall extend to any factory or workshop where any process is carried on by which any gas, vapour, or other impurity is generated and inhaled by the workers to an injurious extent."

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Daldy (H. Sutton with him), for the appellant. The only question is whether on an information under the section it is necessary to shew that the workers have in fact been injured by inhaling the impure air. The magistrate has held that, as the evidence failed to satisfy him that any worker had actually sustained injury, the case of the appellant was not made out. It is sufficient, however, to shew such a state of things as must necessarily be injurious to the workers. The object of the section was to prevent workers from being injured; and if the air is so impure that it must have a tendency to injure them, that is enough.

[He was stopped.]

The respondents did not appear.

Bruce, J.—I do not think that the learned magistrate has found the right point. The question he had to determine was whether dust was generated or inhaled by the workers to an injurious extent—that is, whether the tendency was to injure the workers. It may be that it is only after some long exposure to these injurious airs that the workers are injured; but if the air is so impure as necessarily to be injurious to health, then I think that the Act has been infringed, and it is for the magistrate to find that fact, which he seems not to have found. It is not necessary that it should actually be proved to be injurious to any of the workers, but it is enough that it is of such a character that it would in the long run be injurious to them. The learned magistrate should find, quite apart from the question whether any person has been injured, whether the dust is generated and inhaled by the workers to an injurious extent—to such an extent that its tendency is necessarily to injure their health in the long run. That is, I think, the point.

Phillimore, J.—The case must go back for the magistrate to find whether or not the dust is generated and inhaled to an injurious extent, with an intimation that it is not necessary to prove actual injury to the health of any particular person.

Appeal allowed. Case remitted to the magistrate.

Solicitor for appellant, the Solicitor to the Treasury.

A. P. P. K.

5. Bennett v. Harding.

HIGH COURT OF JUSTICE (QUEEN'S BENCH DIVISION), June 14th, 1900.

Public Health (London)—Sanitary conveniences—Stable-yard—"Workplace"—Persons "in attendance"—Public Health (London) Act, 1891 (54 & 55 Vict. c. 76), section 38.

Section 38 of the Public Health (London) Act, 1891, provides that "every factory, workshop, and workplace shall be provided with sufficient and suitable accommodation in the way of sanitary conveniences, regard being had to the number of persons employed in, or in attendance at, such building."

Stables and a stable-yard were kept by a cab proprietor, and a number of men were employed therein as cab cleaners and horse keepers, and cab drivers were daily in attendance there for the purpose of hiring horses and cabs and returning them after use.

Held, that the stables and stable-yard were a "workplace" within the meaning of the section, and that the cab drivers were "in attendance" there, although they were there as customers, and that sanitary conveniences must be provided for them.

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APPEN-

PENAL COMPENSATION

Prosecutions for Failure to Fence Machinery, &c.,

Defendant.	Petty Sessional or Sheriff Court and Date.	Fine.	Injured Person.	
			Sex.	Age.
(1)	(2)	(3)	(4)	(5)
SOUTH LONDON DISTRICT:		£ s. d.		
E. & A. Miles, Ltd., Onslow St., Guildford, *Sawmillers and Wood Turners.*	Guildford (Borough), January 29 ..	4 3 0	Male	33
E. Antill & Son, Monnow Road, Bermondsey, *Builders.*	Southwark (Metropolitan Police Court), April 11.	20 0 0	Do.	14
Francis & Son, Trundleys Lane, Deptford, *Tin Box Makers.*	Greenwich (Metropolitan Police Court), April 27.	30 0 0	Do.	16
A. Lloyd & Son, Ltd., Mill St., Dockhead, S.E., *Tin Box Makers.*	Southwark (Metropolitan Police Court), May 17.	50 0 0	Do.	20
Metropolitan Gas Meters, Ltd., 62, Glengall Road, S.E., *Gas Meter Manufacturers.*	Lambeth (Metropolitan Police Court), July 26.	10 0 0	Do.	21
H. Ross & Co., Olmar Wharf, Olmar St., S.E., *Leather Incinerators.*	Lambeth (Metropolitan Police Court), October 24.	7 3 6	Do.	21
J. Garrett & Son, 17, Balham Hill, S.W., *Joiners.*	South-Western (Metropolitan Police Court), November 27.	20 0 0	Do.	21
T. S. Marriage & Co., Bell St., Reigate, *Tin Box Makers.*	Reigate (Borough), December 20 ..	3 0 0	Do.	26
WEST LONDON DISTRICT:				
G. & H. Gwynne, Ltd., Queen's Road, Hammersmith, *Engineers.*	West London (Metropolitan Police Court), November 13.	5 0 0	Do.	16
KENT DISTRICT:				
John Bazley White & Bros., Ltd., Bridge Cement Works, Frindsbury, *Cement Manufacturers.*	Chatham (County), May 22	10 0 0	Do.	52
NORTHAMPTON DISTRICT:				
Ferry Brick Co., Ltd., Higham Ferrers, *Brick Manufacturers.*	Higham Ferrers (Borough), March 12	10 0 0	Do.	13
NORWICH DISTRICT:				
H. E. Barnes, Fleece Yard, Fishergate St., Norwich, *Cardboard Boxmaker.*	Norwich (City), November 27 ..	5 0 0	Female	16
SOUTH STAFFORDSHIRE DISTRICT:				
Boys & Boden, James Bridge Sawmills, Station St., Darlaston, *Sawmillers.*	Wednesbury (Stipendiary's Court), April 24.	5 0 0	Male	18
John Webb, Villa Road, Handsworth, *Builder*	Handsworth (County), October 26..	1 0 0	Do.	45
Patent Shaft and Axletree Co., Ltd., Brunswick Works, Wednesbury, *Iron Masters.*	Wednesbury (Stipendiary's Court), December 4.	10 0 0	Do.	65
DERBY DISTRICT:				
Killamarsh Brick Co., Ltd., Killamarsh, Sheffield, *Brick Manufacturers.*	Eckington (County), April 2	—	Do.	16
SOUTH WALES AND MONMOUTHSHIRE DISTRICT:				
Morriston Tinplate Co., Ltd., Morriston, *Tinplate Manufacturers.*	Swansea (County), May 23	9 9 6	Do.	13
NORTH WALES DISTRICT:				
Ruabon Coal and Coke Co., Ltd., Hafod Works, Ruabon, *Brick and Terra Cotta Manufacturers.*	Bromfield (County), November 5 ..	2 0 0	Do.	14

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DIX 3.

CASES, 1900. (S. 82, 1878.)

whereby Injury or Death has been Caused.

Cause of Accident. (6)	Statement as to whether faulty conditions have been remedied. (7)	Nature of Injury. (8)	Application of Penalty. (Under Section 82, 1878.) (9)	Special Remarks (10)
Circular saw	Yes	Loss of three fingers of left hand.	To injured person.	
Planing machine	Yes	Fingers cut, slight fracture.	£5 to injured person and £15 invested until he reaches 21 years of age.	Defendants had been requested to guard this machine.
Power press	Yes	Loss of two fingers.	.. ..	Defendant had been requested to guard this machine. Proceedings under Workmen's Compensation Act were being taken.
Do.	Yes	Loss of part of finger ..	.. ..	Two previous convictions for similar offences. Press ordered to be guarded shortly before accident. Proceedings under Workmen's Compensation Act were being taken.
Do.	Yes	Loss of finger joint of left hand.	To injured person ..	Press previously ordered to be guarded.
Crank of engine	Yes	Foot injured	Do. ..	Engine entirely without guards. The lad was sent to stand on the main bearing between crank and flywheel, to assist in pulling the engine round when starting.
Cutters of planing machine	Yes	Loss of fingers	.. ..	Machine previously ordered to be guarded. Proceedings under Workmen's Compensation Act were being taken.
Power press	Yes	Loss of three fingers ..	.. ..	Do. do.
Cog-wheels	Promised	Two fingers badly crushed.	.. ..	The boy professed to be satisfied with the promises of the firm to take care of him.
Shaft	Yes	Fatal	.. ..	Proceedings under Workmen's Compensation Act were being taken.
Shafting and gearing of brick press.	Yes	Fracture of arm and severe injury to head.	.. ..	The Bench decided to convict under Section 5 (1878), as it was understood that action was being taken under the Workmen's Compensation Act.
Cogwheels	Yes	Loss of tips of two fingers.	.. ..	Proceedings under the Workmen's Compensation Act were being taken.
Circular saw	Yes	Laceration of thumb ..	.. ..	Injured person received weekly compensation during incapacity.
Wood-planing machine ..	Yes	Loss of three fingers of left hand.	.. ..	Do. do.
Circular saw	?	Loss of two fingers ..	.. ..	Do. do
Gearing of mixing machine	Yes	Laceration and fracture of arm.	.. ..	Case withdrawn on payment of costs, the firm having paid the injured person £30 and legal expenses.
Rollers of tinplate dusting machine.	Yes	Loss of two fingers of left hand.	To injured person.	
Brick press	*No	Loss of hand	.. ..	Compensation has since been given to the young person. * Firm are experimenting with two different forms of guards.

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PENAL COMPENSA-

Prosecutions for Failure to Fence Machinery, &c.,

Defendant.	Petty Sessional or Sheriff Court and Date.	Fine.	Injured Person.	
			Sex.	Age.
(1)	(2)	(3)	(4)	(5)
		£ s. d.		
LEEDS DISTRICT:				
J. W. Shackleton, Vine St., Hunslet, Leeds, *Tinplate Stamper.*	Leeds (City), April 20	0 17 6	Male	? (Adult)
Pullan & Mann, Elland Road, Leeds, *Engineers*	Leeds (City), October 31	2 6 0	Do.	16
Jas. Lupton, Water Lane, Leeds, *Cabinet Maker.*	Leeds (City), November 8	5 0 0	Do.	14
SHEFFIELD DISTRICT:				
Samuel E. Stevens, Hexthorpe, Doncaster, *Waggon Builder.*	Doncaster (County), September 29..	10 0 0	Do.	38
HUDDERSFIELD DISTRICT:				
M. Broadbent & Sons, Wellington Mills, Greenfield, *Cotton Spinners.*	Uppermill (County), January 24 ..	5 0 0	Female	12
MANCHESTER DISTRICT:				
Shaw, Jardine & Co., Ltd., Butler St., Manchester, *Cotton Spinners.*	Manchester (City), February 14 ..	20 0 0	Do.	13
St. Helen's Cable Co., Ltd., Bank Quay, Warrington, *Electric Cable Manufacturers.*	Warrington (Borough), September 7	20 0 0	Do.	22
McConnel & Co., Ltd., Henry St., Ancoats, Manchester, *Cotton Spinners.*	Manchester (City), December 7 ..	0 5 0	Male	48
ROCHDALE DISTRICT:				
Robert Peers, Brooksmouth Mill, Bury, *Cotton Manufacturer and Dyer.*	Bury (Borough), April 26	10 0 0	Do.	16
Marsden, Cotton & Co., Laneside Haslingden, *Cotton Manufacturers.*	Haslingden (County), July 9.. ..	0 1 0	Female	25
Schofield & Jones, Duke St., Rochdale, *Sawmillers.*	Rochdale (Borough), October 10 ..	5 0 0	Male	33
CHESHIRE DISTRICT:				
Axon, Grundy & Rowbottom, Hazel Grove, Stockport, *Felt Hat Manufacturers.*	Stockport (County), March 8.. ..	1 0 0	Do.	26
LIVERPOOL DISTRICT:				
Fraser & Co., Davies St., Bootle, *Fellmongers* ..	Bootle (Borough), March 20	2 0 0	Do.	14
Moore & Co., 20, High St., Runcorn, *Letterpress Printers.*	Runcorn (County), May 21	2 0 0	Do.	14
City Tin Co., 54, Gildart's Gardens, Liverpool, *Tin Canister Manufacturers.*	Liverpool (City), October 10	15 0 0	Female	18
BLACKBURN DISTRICT:				
Eli Heyworth & Sons, Audley Hall Mill, Blackburn, *Cotton Manufacturers.*	Blackburn (Borough), October 11 ..	25 0 0	Do.	13
PRESTON DISTRICT:				
John Stones, Rosside, Ulverston, *Shutter Maker.*	Ulverston (County), September 6 ..	1 0 0	Male	57
WEST SCOTLAND DISTRICT:				
Wm. Hamilton & Co., Belhaven St., Port Glasgow, *Shipbuilders.*	Greenock, June 22	5 0 0	Do.	54

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TION CASES—*continued.*

whereby Injury or Death has been Caused—*continued.*

Cause of Accident. (6)	Statement as to whether faulty conditions have been remedied. (7)	Nature of Injury (8)	Application of Penalty. (Under Section 82, 1878). (9)	Special Remarks. (10)
Power press	†	Loss of part of hand ..	.. ..	Small penalty as defendant had filed his petition in bankruptcy after the first hearing of the case on April 6. † Given up works.
Wood-planing machine ..	Yes	Loss of end of thumb ..	To injured person.	
Circular saw	Yes	Flesh wound of right forearm.	£3 to injured person.	
Circular saw	Yes	Loss of little finger of right hand.	To injured person.	Written and verbal notice had been sent to fence the saw.
Hoist	Yes	Fatal	To father of deceased.	
Hoist doors (with no catches to fasten them) being left open.	Yes	Fatal	.. ..	The Insurance Company paid £54 12s. into court, which the father of the deceased has accepted as compensation.
Projecting line shaft under braiding bench.	Yes	Fatal	—	The father of the deceased was proceeding under the Workmen's Compensation Act.
Cage of hoist	Yes	Fatal	—	
Fly-wheel of steam engine	Yes	Dislocation of shoulder, ear nearly torn off.	£5 to injured person	
Flying shuttle	Yes	Loss of left eye	.. ..	£115 and all costs were paid to the injured person; nominal penalty therefore applied for. It was also shown that a firm of guard makers had been requested by defendants to repair defective guards some ten or twelve days before the accident occurred.
Circular saw	Yes	Loss of left hand	.. ..	Defendants agreed to pay £100 compensation.
Belt and pulley on fur blower.	Yes	Loss of left arm	.. ..	Defendants signed an agreement to pay injured person £50 and guarantee him permanent employment at 18s. per week.
Cog-wheels	Yes	Loss of first finger of left hand.	.. ..	Defendants compensated injured person.
Do.	Yes	Finger crushed	.. ..	Defendants stated that they were paying half wages, and would take the girl back when fit to work.
Tin stamping machine ..	Yes	Loss of end of finger ..	£10 to injured person.	
Sateen motion bevel wheels on power loom.	Yes	Scalp torn off	£20 deposited in Savings Bank for injured person.	Defendants also paid £45 to parents of injured person.
Circular saw	Yes	Loss of hand	.. ..	Defendants had agreed to pay compensation.
Do.	Yes	Contusion of right shoulder.	.. ..	Injured person was taking proceedings to recover damages for injuries.

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APPENDIX 4.

OVERTIME REPORTS received in 1900.

1. District, Statutory Authority, Number of Separate Places and Occasions.

District.	Ordinary Overtime. (S. 53. 1878.)		Incomplete Process. (S. 54, 1878.)		Turkey Red Dyeing and Open-air Bleaching. (S. 55, 1878.)		Perishable Articles. (S. 56, 1878.)		Water Power. (S. 57, 1878.)		Laundries. (S. 22, 1895.)		All Overtime.	
P.—Places or Separate Departments. R.—Reports.	P.	R.	P.	R.	P.	R.	P.	R.	P.	R.	P.	R.	P.	R.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1. North London*	811	7,011	—	—	—	—	4	62	—	—	24	198	839	7,271
2. South London	728	7,035	—	—	—	—	8	125	—	—	104	898	840	8,058
3. West London*	428	4,545	—	—	—	—	6	98	—	—	7	105	441	4,748
3a. Works assigned to Miss Deane.	538	5,476	—	—	—	—	—	—	—	—	36	357	574	5,833
4. East London*	695	5,389	—	—	—	—	13	163	—	—	7	19	705	5,571
5. Kent	190	1,922	1	40	—	—	1	27	—	—	20	200	212	2,189
6. Southampton	333	3,377	—	—	—	—	3	43	—	—	12	84	348	3,504
7. Plymouth	301	3,423	—	—	—	—	3	7	—	—	7	62	311	3,492
8. Bristol	361	4,078	—	—	—	—	4	141	—	—	6	55	371	4,274
9. Northampton	159	1,509	—	—	—	—	—	—	—	—	1	1	160	1,510
10. Norwich	422	5,401	—	—	—	—	9	121	—	—	16	200	447	5,722
11. Birmingham	302	3,375	—	—	—	—	1	20	—	—	3	40	306	3,435
12. Worcester	38	456	—	—	—	—	—	—	—	—	1	3	39	459
13. Wolverhampton	173	1,899	—	—	—	—	—	—	—	—	1	15	174	1,914
14. South Staffordshire ..	99	1,249	—	—	—	—	—	—	—	—	3	38	102	1,287
15. North Staffordshire ..	120	1,538	—	—	—	—	—	—	—	—	—	—	120	1,538
16. Leicester	183	2,094	—	—	—	—	—	—	—	—	—	—	183	2,094
17. Nottingham	141	1,533	—	—	—	—	2	27	—	—	1	6	144	1,566
18. Derby	121	1,341	—	—	—	—	1	24	2	136	2	26	126	1,528
19. Lincoln	144	1,670	—	—	—	—	1	36	—	—	4	40	149	1,746
20. South Wales and Monmouthshire.	410	5,090	—	—	—	—	1	4	1	16	13	90	425	5,200
21. North Wales	77	875	—	—	—	—	—	—	—	—	5	77	82	952
22. Leeds	609	7,398	—	—	—	—	3	113	—	—	25	385	637	7,896
23. Sheffield	292	3,724	—	—	—	—	—	—	—	—	4	14	296	3,738
24. Huddersfield	116	1,737	—	—	—	—	—	—	1	69	8	87	125	1,896
25. Halifax	136	1,995	—	—	—	—	—	—	—	—	2	31	138	2,026
26. Bradford	185	1,908	—	—	—	—	1	6	—	—	7	56	193	1,970
27. Newcastle	498	6,713	—	—	—	—	1	14	—	—	11	93	510	6,820
28. Manchester	715	8,193	—	—	—	—	4	125	—	—	23	188	749	8,506
29. Oldham	98	1,328	—	—	—	—	2	34	—	—	2	12	102	1,374
30. Rochdale	135	1,747	—	—	—	—	3	70	—	—	3	36	141	1,853
31. Bolton	135	1,983	1	3	—	—	—	—	—	—	2	2	138	1,988
32. Cheshire	141	1,630	—	—	—	—	2	64	—	—	4	67	147	1,761
33. Liverpool	422	4,792	—	—	—	—	6	128	—	—	21	172	449	5,092
34. Blackburn	185	2,542	—	—	—	—	2	16	—	—	5	66	192	2,624
35. Preston	297	3,787	—	—	—	—	2	22	—	—	16	210	315	4,019
36. West Scotland	987	13,206	—	—	—	—	11	137	—	—	51	521	1,049	13,864
37. South West Scotland ..	174	2,276	3	20	—	—	—	—	—	—	11	136	188	2,432
38. South East Scotland ..	237	2,769	1	59	—	—	1	29	—	—	5	46	244	2,903
39. East Scotland	163	2,044	—	—	—	—	7	152	—	—	6	29	176	2,225
40. North Scotland	159	2,008	—	—	—	—	1	9	—	—	3	49	163	2,066
41. North Ireland	597	7,175	–	–	—	—	1	38	—	—	17	189	615	7,402
42. South Ireland	224	2.669	—	—	—	—	12	134	—	—	9	98	245	2 891
Total	13,260	151,910	6	122	—	—	116	1,984	4	221	508	5,066	13,903	159,237
Ditto for 1899 ..	*14,116*	*167,837*	*12*	*84*	—	—	*112*	*2,093*	*6*	*231*	*571*	*6,156*	*14,817*	*176,401*

* The boundaries of these districts were re-adjusted on August 1st, 1900.

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APPENDIX 4 (OVERTIME REPORTS)—*continued.*

2. Process, Factories and Workshops, Number of Places and Occasions, Average number of Reports per Factory or Workshop working Overtime.

Process. (1)	Factories. Places. (2)	Factories. Reports. (3)	Factories. Average. (4)	Workshops. Places. (5)	Workshops. Reports. (6)	Workshops. Average. (7)	Factories and Workshops. Places. (8)	Factories and Workshops. Reports. (9)	Factories and Workshops. Average. (10)
UNDER S. 55, AND SCH. III. 3.									
1. Flax scutching	—	—	—	—	—	—	—	—	—
2. Making or finishing of bricks or tiles, not being ornamental tiles.	7	55	7·9	—	—	—	7	55	7·9
3. Open air rope making	—	—	—	—	—	—	—	—	—
4. Open air bleaching	—	—	—	—	—	—	—	—	—
5. Turkey red dyeing	—	—	—	—	—	—	—	—	—
6. Glue making	7	97	13·9	—	—	—	7	97	13·9
7. Letterpress printing	541	6,376	11·8	—	—	—	541	6,376	11·8
8. Bookbinding	338	4,247	12·6	—	—	—	338	4,247	12·6
9. Lithographic printing	114	1,222	10·7	1	18	18·0	115	1,240	10·8
10. Machine ruling	28	211	9·2	3	30	10·0	26	241	9·3
11. Firewood cutting	5	52	10·4	1	5	5·0	6	57	9·5
12. Bon-bon and Christmas present making	100	1,448	14·5	38	403	10·6	138	1,851	13·4
13. Almanack making	10	153	15·3	6	36	6·0	16	189	11·8
14. Valentine „	1	17	17·0	—	—	—	1	17	17·0
15. Envelope „	29	397	13·7	6	42	7·0	35	439	12·5
16. Aërated water making	174	1,534	8·8	1	4	4·0	175	1,538	8·8
17. Making of boxes for aërated water bottles	1	29	29·0	—	—	—	1	29	29·0
18. Playing card making	1	14	14·0	—	—	—	1	14	14·0
19. Making up of any article of wearing apparel	927	11,975	12·9	9,861	111,328	11·3	10,788	123,303	11·4
20. Making up of furniture hangings	9	71	7·9	115	1,154	10·0	124	1,225	9·9
21. Artificial flower making	—	—	—	4	10	2·5	4	10	2·5
22. Fancy box making	136	1,541	11·3	124	1,194	9·6	260	2,735	10·5
23. Biscuit baking	53	733	13·8	25	175	7·0	78	908	11·6
24. Job dyeing	48	786	16·4	4	49	12·3	52	835	16·1
25. Warehouses (Textile)	17	194	11·4	46	498	10·8	292	3,586	12·3
26. „ (Non-Textile)	229	2,894	12·6						
27. Die sinking	7	103	14·7	4	22	5·5	11	125	11·4
28. Cardboard making	6	102	17·0	—	—	—	6	102	17·0
29. Paper colouring and enamelling	7	139	19·9	—	—	—	7	139	19·9
30. Rolling of tea lead	—	—	—	—	—	—	—	—	—
31. Making gasholders, boilers, &c. partly manufactured in the open air.	—	—	—	—	—	—	—	—	—
32. Dressing floors, tin streams, china claypits, and quarries (in Cornwall).	—	—	—	—	—	—	—	—	—
33. Making of fireworks	—	—	—	1	23	23·0	1	23	23·0

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APPENDIX (OVERTIME REPORTS)—*continued.*

2. Process, Factories and Workshops, Number of Places and Occasions, Average number of Reports per Factory or Workshop working Overtime—*continued.*

Process.	Factories.			Workshops.			Factories and Workshops.		
	Places.	Reports.	Average.	Places.	Reports.	Average.	Places.	Reports.	Average.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
UNDER S. 53, AND SCH. III. 3—*continued.*									
34. Making of pork pies	10	90	9·0	53	465	8·9	63	555	9·0
35. Calendering, finishing, &c., of yarn or cloth	157	1,775	11·3	—	—	—	157	1,775	11·3
36. Milling, perforating, and gumming Inland Revenue stamps and postal stationery.	2	41	20·5	—	—	—	2	41	20·5
37. Warping, winding, or filling—as incidental to the weaving of ribbons in workshops.	—	—	—	—	—	—	—	—	—
38. Beer bottling	10	88	8·8	4	21	5·3	14	109	7·8
39. Washing of bottles for use in the preserving of fruit.	4	49	12·3	—	—	—	4	49	12·3
Total	**2,973**	**36,433**	**12·3**	**10,296**	**115,477**	**11·2**	**13,269**	**151,910**	**11·4**
UNDER S. 54, AND SCH. III. 4.									
40. Bleaching and dyeing	1	3	3·0	—	—	—	1	3	3·0
41. Calico, &c., printing	—	—	—	—	—	—	—	—	—
42. Iron mills, in which male young persons are not employed during any part of the night.	—	—	—	—	—	—	—	—	—
43. Foundries, " " " "	3	20	6·7	—	—	—	3	26	6·7
44. Paper mills, " " " "	—	—	—	—	—	—	—	—	—
45. Bread and biscuit baking	2	99	49·5	—	—	—	2	99	49·5
46. Dressing floors, tin streams, china claypits, and quarries (in Cornwall).	—	—	—	—	—	—	—	—	—
Total	**6**	**122**	**20·3**	**—**	**—**	**—**	**6**	**122**	**20·3**
UNDER S. 55.									
47. Turkey red dyeing	—	—	—	—	—	—	—	—	—
48. Open air bleaching	—	—	—	—	—	—	—	—	—
Total	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**
UNDER S. 56, AND SCH. III. 5.									
49. Making preserves from fruit	87	1,532	17·6	6	130	21·7	93	1,662	17·9
50. Preserving or curing fish	4	76	19·0	1	4	4·0	5	80	16·0
51. Making condensed milk	9	116	12·9	—	—	—	9	116	12·9
52. Preparing cream, and butter and cheese making.	9	126	14·0	—	—	—	9	126	14·0
Total	**109**	**1,850**	**17·0**	**7**	**134**	**19·1**	**116**	**1,984**	**17·1**
UNDER S. 57.									
53. Factories in which water-power alone is used to move machinery.	4	221	55·3	—	—	—	4	221	55·3
UNDER S. 22 (1895).									
54. Laundries	404	4,143	10·3	104	857	8·2	508	5,000	9·8
GRAND TOTAL	**3,496**	**42,769**	**12·2**	**10,407**	**116,468**	**11·2**	**13,903**	**159,237**	**11·5**
Grand Total for 1899	*3,887*	*50,645*	*13·0*	*10,930*	*125,756*	*11·5*	*14,817*	*176,401*	*11·9*

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APPENDIX 4 (OVERTIME REPORTS)—*continued.*

3. Making up of Articles of Wearing Apparel

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APPENDIX 4 (OVERTIME

3. Making up of Articles

District. P. — Places or separate Departments. R. — Reports.	Tailoring.		Straw Hats and Bonnets.		Other Hats and Caps.		Millinery, Mantle, Corset, and Dressmaking.		Aprons, Pinafores, and Blouses.	
	P.	R.	P.	R.	P.	R.	P.	R.	P.	R.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. North London	161	1,262	—	—	30	268	238	1,874	19	113
2. South London	38	428	—	—	—	—	556	5,123	1	20
3. West London	116	883	—	—	1	3	138	1,441	—	—
3a. Works assigned to Miss Deane	—	—	—	—	—	—	534	5,457	3	17
4. East London	415	3,129	—	—	20	114	149	1,093	—	—
5. Kent	8	59	—	—	—	—	169	1,899	—	—
6. Southampton	61	639	—	—	1	30	253	2,490	—	—
7. Plymouth	48	633	—	—	1	24	232	2,615	—	—
8. Bristol	50	641	—	—	2	15	205	2,038	—	—
9. Northampton	7	48	20	168	2	22	98	1,038	—	—
10. Norwich	26	496	—	—	—	—	328	4,183	1	27
11. Birmingham	117	1,378	—	—	1	6	86	963	2	8
12. Worcester	1	3	—	—	—	—	22	300	—	—
13. Wolverhampton	37	425	—	—	—	—	107	1,175	—	—
14. South Staffordshire	17	274	—	—	—	—	52	568	—	—
15. North Staffordshire	7	98	—	—	—	—	71	923	—	—
16. Leicester	33	405	—	—	—	—	83	987	—	—
17. Nottingham	14	134	—	—	—	—	86	1,037	10	82
18. Derby	9	58	—	—	—	—	76	917	—	—
19. Lincoln	7	84	—	—	—	—	122	1,398	—	—
20. South Wales and Monmouthshire.	48	525	—	—	—	—	339	4,324	—	—
21. North Wales	3	18	—	—	—	—	68	740	—	—
22. Leeds	214	2,730	—	—	5	52	271	2,881	2	27
23. Sheffield	77	1,123	—	—	—	—	159	2,005	—	—
24. Huddersfield	25	449	—	—	—	—	66	983	1	1
25. Halifax	35	442	—	—	—	—	76	1,329	1	14
26. Bradford	27	295	—	—	—	—	122	1,217	2	12
27. Newcastle	43	512	—	—	—	—	337	4,582	—	—
28. Manchester	177	2,045	—	—	35	463	209	2,016	11	123
29. Oldham	15	234	—	—	20	234	45	669	—	—
30. Rochdale	14	238	1	23	9	86	85	1,099	—	—
31. Bolton	24	328	—	—	—	—	80	1,301	1	18
32. Cheshire	36	397	—	—	21	228	48	472	—	—
33. Liverpool	125	1,403	—	—	—	—	196	2,258	—	—
34. Blackburn	19	256	—	—	—	—	132	2,001	—	—
35. Preston	16	164	—	—	1	3	212	2,884	1	9
36. West Scotland	95	1,072	—	—	7	160	514	7,377	5	71
37. South West Scotland	15	166	—	—	3	94	129	1,768	—	—
38. South East Scotland	2	33	—	—	—	—	80	830	—	—
39. East Scotland	4	62	—	—	—	—	125	1,518	—	—
40. North Scotland	—	—	—	—	2	2	112	1,493	—	—
41. North Ireland	24	352	—	—	—	—	227	3,179	28	334
42. South Ireland	15	244	—	—	—	—	157	1,724	—	—
Total	**2,225**	**24,090**	**21**	**191**	**161**	**1,894**	**7,393**	**86,069**	**38**	**876**
Total for 1899	*2,216*	*24,344*	*18*	*239*	*181*	*2,339*	*7,796*	*92,913*	*135*	*1,805*

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REPORTS)—*continued.*

of Wearing Apparel.

Shirt and Linen Collar Making.		Glove making (other than Textile).		Boots and Shoes.		Hand-kerchiefs.		Other Articles of Clothing.		Total.		District.
P.	R.	P.	R.	P.	R.	P.	R.	P.	R.	P.	R.	{P.—Places or separate Departments. R.—Reports.
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(1)
3	13	—	—	11	97	—	—	62	523	524	4,150	1. North London.
3	13	—	—	—	—	—	—	11	108	669	5,692	2. South London.
1	2	—	—	2	9	—	—	20	184	278	2,522	3. West London.
—	—	—	—	—	—	—	—	—	—	537	5,474	3a. Works assigned to Miss Deane.
1	8	—	—	12	140	—	—	28	247	625	4,731	4. East London.
1	21	—	—	—	—	—	—	3	30	181	1,809	5. Kent.
—	—	—	—	—	—	—	—	4	33	318	3,192	6. Southampton.
—	—	1	6	—	—	—	—	2	34	264	3,312	7. Plymouth.
9	146	3	12	39	509	—	—	5	90	313	3,451	8. Bristol.
—	—	—	—	27	199	—	—	1	11	155	1,486	9. Northampton.
1	11	—	—	13	180	—	—	8	129	377	4,966	10. Norwich.
—	—	—	—	4	49	—	—	5	73	215	2,497	11. Birmingham.
—	—	—	—	2	15	—	—	—	—	25	318	12. Worcester.
—	—	—	—	1	13	—	—	1	1	140	1,614	13. Wolverhampton.
—	—	—	—	—	—	—	—	1	21	70	883	14. South Stafford.
—	—	—	—	16	212	—	—	2	8	96	1,241	15. North Stafford.
—	—	—	—	23	247	—	—	19	217	158	1,856	16. Leicester.
—	—	—	—	2	7	—	—	2	37	114	1,297	17. Nottingham.
—	—	—	—	8	50	—	—	—	—	93	1,025	18. Derby.
	—	—	—	—	—	—	—	—	—	129	1,482	19. Lincoln.
—	—	—	—	—	—	—	—	1	12	388	4,861	20. South Wales and Monmouthshire.
1	20	—	—	—	—	—	—	—	—	72	778	21. North Wales.
6	72	—	—	23	287	—	—	5	78	523	6,127	22. Leeds.
1	11	—	—	—	—	—	—	3	38	240	3,177	23. Sheffield.
—	—	—	—	—	—	—	—	2	48	94	1,481	24. Huddersfield.
1	13	—	—	1	6	—	—	12	99	126	1,903	25. Halifax.
—	—	—	—	2	8	—	—	5	123	158	1,655	26. Bradford.
—	—	—	—	—	—	—	—	2	36	382	5,130	27. Newcastle.
13	166	1	5	1	2	7	144	54	696	598	5,662	28. Manchester.
—	—	—	—	—	—	—	—	1	1	81	1,128	29. Oldham.
1	6	—	—	5	74	—	—	4	54	119	1,580	30. Rochdale.
—	—	—	—	—	—	—	—	3	28	108	1,670	31. Bolton.
2	58	2	52	3	80	—	—	—	—	112	1,287	32. Cheshire.
2	13	—	—	1	9	—	—	4	69	328	3,752	33. Liverpool.
—	—	—	—	1	14	—	—	12	95	164	2,366	34. Blackburn.
—	—	—	—	2	7	—	—	11	128	243	3,195	35. Preston.
23	461	—	—	4	34	9	106	53	624	710	9,905	36. West Scotland.
—	—	—	—	6	61	—	—	2	24	155	2,113	37. South West Scotland.
1	2	—	—	2	50	—	—	3	46	88	961	38. South East Scotland.
—	—	—	—	2	28	—	—	4	71	185	1,679	39. East Scotland.
2	25	—	—	1	11	—	—	—	—	117	1,531	40. North Scotland.
76	851	—	—	4	54	125	1,346	22	173	566	6,289	41. North Ireland.
4	39	—	—	4	57	—	—	1	11	181	2,075	42. South Ireland.
152	**1,951**	**7**	**75**	**222**	**2,509**	**141**	**1,596**	**378**	**4,202**	**10,788**	**123,303**	**Total.**
183	*2,219*	*5*	*32*	*330*	*3,727*	*192*	*2,364*	*425*	*5,321*	*11,391*	*135,303*	*Total for 1899*

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APPEN-

Outworkers,

DISTRICT. L.=Lists. O.=Outworkers. (1)	WEARING											
	Furriers.		Tailoring.		Hats and Caps.		Millinery, Mantle, Corset, and Dressmaking.		Aprons, Pinafores, and Blouses.		Shirt and Linen Collar Making.	
	L. (3)	O. (3)	L. (4)	O. (5)	L. (6)	O. (7)	L. (8)	O. (9)	L. (10)	O. (11)	L. (12)	O. (13)
1. North London	1	26	37	801	1	9	16	174	4	198	3	209
2. South London	—	—	45	306	9	54	19	156	1	22	14	378
3. West London	—	—	44	682	—	—	3	21	—	—	1	3
3a. Works assigned to Miss Deane	2	4	38	212	—	—	15	259	5	14	—	—
4. East London	—	—	31	2,138	—	—	5	186	—	—	5	547
5. Kent	—	—	9	322	—	—	—	—	—	—	—	—
6. Southampton	—	—	52	264	—	—	15	771	1	20	1	9
7. Plymouth	—	—	5	134	—	—	1	3	—	—	1	2
8. Bristol	—	—	33	2,311	2	48	8	642	2	102	4	144
9. Northampton	—	—	3	112	2	21	—	—	1	1	—	—
10. Norwich	—	—	41	1,560	—	—	7	240	—	—	—	—
SOUTHERN DIVISION	3	30	338	8,942	14	132	89	2,452	14	357	29	1,292
11. Birmingham	—	—	31	363	3	96	2	31	1	12	—	—
12. Worcester	—	—	6	341	—	—	1	1	—	—	3	39
13. Wolverhampton	—	—	10	203	—	—	—	—	—	—	—	—
14. South Staffordshire	—	—	29	391	—	—	—	—	1	5	1	2
15. North Staffordshire	—	—	14	54	—	—	—	—	—	—	—	—
16. Leicester	—	—	18	278	—	—	1	41	—	—	—	—
17. Nottingham	—	—	8	21	1	13	—	—	2	10	—	—
18. Derby	—	—	6	17	—	—	1	27	—	—	—	—
19. Lincoln	—	—	11	49	—	—	—	—	—	—	1	1
20. South Wales and Monmouthshire	—	—	37	245	—	—	—	—	—	—	1	2
21. North Wales	—	—	1	2	—	—	1	5	—	—	—	—
MIDLAND DIVISION	—	—	171	1,964	4	109	6	105	4	27	6	44
22. Leeds	—	—	81	1,122	1	9	6	37	2	12	2	10
23. Sheffield	—	—	55	315	—	—	2	8	—	—	2	12
24. Huddersfield	—	—	9	35	—	—	1	1	—	—	—	—
25. Halifax	—	—	12	37	—	—	1	1	—	—	2	5
26. Bradford	—	—	13	60	—	—	—	—	—	—	1	2
27. Newcastle	1	5	42	105	—	—	5	4	—	—	9	24
NORTH-EASTERN DIVISION	1	5	212	1,674	1	9	15	51	2	12	16	53
28. Manchester	1	1	134	786	3	11	38	446	28	483	51	1,026
29. Oldham	—	—	—	—	5	160	—	—	—	—	—	—
30. Rochdale	—	—	1	3	—	—	—	—	—	—	1	1
31. Bolton	—	—	2	19	—	—	—	—	—	—	—	—
32. Cheshire	—	—	4	102	4	145	—	—	—	—	1	5
33. Liverpool	1	2	58	625	—	—	—	—	—	—	1	2
34. Blackburn	—	—	15	39	—	—	1	2	2	5	2	2
35. Preston	—	—	16	37	—	—	—	—	1	1	3	14
NORTH-WESTERN DIVISION	2	3	230	1,611	12	316	39	448	31	489	59	1,050
36. West Scotland	—	—	23	72	6	85	2	7	2	24	15	325
37. South West Scotland	—	—	2	3	10	172	—	—	—	—	—	—
38. South East Scotland	—	—	11	18	1	6	—	—	—	—	3	6
39. East Scotland	—	—	1	11	—	—	—	—	—	—	1	2
40. North Scotland	—	—	24	50	1	1	5	15	1	4	20	38
41. North Ireland	—	—	19	56	—	—	—	—	9	968	59	3,499
42. South Ireland	—	—	80	444	2	4	7	74	1	1	8	31
SCOTLAND AND IRELAND DIVISION.	—	—	160	654	20	268	14	96	13	997	106	3,891
UNITED KINGDOM	6	38	1,111	14,745	51	834	163	3,152	64	1,882	216	6,330

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DIX 5.

1900.

APPAREL																			
Glove Making.		Boots and Shoes.		Handkerchiefs.		Other Articles of Clothing.		Total.		Fur Pulling.		Electro Plate.		Cabinets, Furniture, and Upholstery.		File Making.		ALL INDUSTRIES.	
L. (14)	O. (15)	L. (16)	O. (17)	L. (18)	O. (19)	L. (20)	O. (21)	L. (22)	O. (23)	L. (24)	O. (25)	L. (26)	O. (27)	L. (28)	O. (29)	L. (30)	O. (31)	L. (32)	O. (33)
—	—	10	119	—	—	14	428	86	1,964	—	—	—	—	2	18	—	—	88	1,977
—	—	8	80	—	—	5	200	101	1,196	4	34	—	—	3	16	—	—	106	1,246
3	104	1	4	—	—	3	50	55	924	—	—	—	—	2	9	—	—	57	933
—	—	—	—	—	—	6	73	66	562	—	—	—	—	—	—	—	—	66	562
—	—	9	175	—	—	5	64	55	3,108	—	—	—	—	—	—	—	—	55	3,108
—	—	3	11	—	—	—	—	12	333	—	—	—	—	—	—	—	—	12	333
2	31	2	10	—	—	—	—	73	1,105	—	—	—	—	2	8	—	—	75	1,113
—	—	2	3	—	—	7	1,594	16	1,646	—	—	—	—	2	4	—	—	18	1,650
15	2,096	22	533	—	—	—	—	86	5,876	—	—	—	—	2	6	—	—	88	5,882
—	—	88	1,820	—	—	—	—	94	1,954	—	—	—	—	—	—	—	—	94	1,954
—	—	31	850	—	—	—	—	79	2,650	2	234	—	—	—	—	—	—	81	2,884
20	**2,291**	**176**	**3,603**	—	—	**40**	**2,319**	**723**	**21,318**	**6**	**268**	—	—	**13**	**56**	—	—	**742**	**21,642**
—	—	—	—	—	—	1	6	38	508	—	—	4	19	3	24	—	—	45	551
6	1,572	5	66	—	—	—	—	21	2,019	—	—	—	—	—	—	—	—	21	2,019
—	—	—	—	—	—	—	—	10	203	—	—	—	—	—	—	—	—	10	203
—	—	3	4	—	—	1	25	35	427	—	—	—	—	—	—	—	—	35	427
—	—	7	134	—	—	—	—	21	188	—	—	—	—	—	—	—	—	21	188
—	—	39	739	—	—	23	848	81	1,906	—	—	—	—	—	—	—	—	81	1,996
—	—	1	42	—	—	3	90	15	176	—	—	—	—	—	—	—	—	15	176
—	—	16	56	—	—	4	152	27	252	—	—	—	—	—	—	—	—	27	252
—	—	1	1	—	—	—	—	13	51	—	—	—	—	—	—	—	—	13	51
—	—	1	2	—	—	—	—	39	249	—	—	—	—	—	—	—	—	39	249
—	—	—	—	—	—	—	—	2	7	—	—	—	—	—	—	—	—	2	7
6	**1,572**	**73**	**1,044**	—	—	**32**	**1,121**	**302**	**5,986**	—	—	**4**	**19**	**3**	**24**	—	—	**309**	**6,029**
—	—	17	87	—	—	2	16	111	1,293	—	—	—	—	1	4	—	—	112	1,297
—	—	1	8	—	—	—	—	60	343	—	—	87	1,507	2	14	74	2,236	223	4,100
—	—	5	8	—	—	1	22	16	66	—	—	—	—	—	—	—	—	16	86
—	—	4	4	—	—	1	1	20	48	—	—	—	—	—	—	—	—	26	48
—	—	—	—	—	—	—	—	14	62	—	—	—	—	2	5	—	—	16	67
—	—	33	44	—	—	12	32	102	214	—	—	—	—	2	6	1	2	105	222
—	—	**60**	**151**	—	—	**16**	**71**	**323**	**2,026**	—	—	**87**	**1,507**	**7**	**29**	**75**	**2,238**	**492**	**5,966**
—	—	51	251	19	536	39	454	364	3,994	—	—	3	4	13	38	4	44	384	4,030
—	—	—	—	—	—	1	3	6	163	—	—	—	—	—	—	—	—	6	163
—	—	—	—	—	—	—	—	2	4	—	—	—	—	—	—	—	—	2	4
—	—	—	—	—	—	—	—	2	19	—	—	—	—	—	—	—	—	2	19
—	—	1	8	—	—	—	—	10	260	—	—	—	—	—	—	—	—	10	260
—	—	1	2	—	—	4	17	65	648	—	—	—	—	1	5	—	—	66	653
—	—	—	—	—	—	4	8	24	56	—	—	—	—	—	—	—	—	24	56
—	—	1	1	—	—	—	—	21	53	—	—	—	—	—	—	—	—	21	53
—	—	**54**	**262**	**19**	**536**	**48**	**482**	**494**	**5,197**	—	—	**3**	**4**	**14**	**43**	**4**	**44**	**515**	**5,288**
—	—	3	51	—	—	17	482	68	1,046	—	—	—	—	2	4	—	—	70	1,050
—	—	4	14	—	—	8	89	24	278	—	—	—	—	—	—	—	—	24	278
—	—	—	—	—	—	22	542	37	572	—	—	—	—	1	4	—	—	38	576
—	—	1	9	—	—	5	73	8	95	—	—	—	—	—	—	—	—	8	95
—	—	11	15	—	—	25	496	87	619	—	—	—	—	3	15	—	—	90	634
—	—	7	22	55	3,494	10	201	159	8,230	—	—	—	—	—	—	—	—	159	8,230
—	—	7	78	—	—	13	287	118	919	—	—	4	7	1	1	—	—	123	927
—	—	**33**	**189**	**55**	**3,494**	**100**	**2,170**	**501**	**11,759**	—	—	**4**	**7**	**7**	**24**	—	—	**512**	**11,790**
26	**3,863**	**396**	**5,249**	**74**	**4,030**	**236**	**6,163**	**2,343**	**46,286**	**6**	**268**	**98**	**1,537**	**44**	**176**	**79**	**2,282**	**2,570**	**50,549**

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APPENDIX 6.

Separate Departments Certificates issued by H.M. Inspectors in 1900.

District.	Overtime.		Period of Employment.		District.	Overtime.		Period of Employment.	
	Premises.	Departments.	Premises.	Departments.		Premises.	Departments.	Premises.	Departments.
North London	14	31	—	—	Brought forward ..	109	294	9	18
South London	9	26	—	—	Leeds	8	25	—	—
West London	4	13	—	—	Sheffield	9	25	—	—
Works assigned to Miss Deane.	3	13	—	—	Huddersfield	1	2	—	—
East London	3	7	—	—	Halifax	5	11	—	—
Kent	10	24	—	—	Bradford	3	6	—	—
Southampton	11	30	—	—	Newcastle	7	16	—	—
Plymouth	11	37	—	—	Manchester	6	20	—	—
Bristol	11	37	—	—	Oldham	1	2	—	—
Northampton	5	13	—	—	Rochdale	1	6	—	—
Norwich	—	—	—	—	Bolton	—	—	—	—
Birmingham	8	20	2	4	Cheshire	—	—	—	—
Worcester	2	4	—	—	Liverpool	1	3	—	—
Wolverhampton	1	2	—	—	Blackburn	10	20	—	—
South Staffordshire ..	1	2	7	14	Preston	2	6	—	—
North Staffordshire ..	—	—	—	—	West Scotland ..	19	49	—	—
Leicester	—	—	—	—	South West Scotland	2	4	—	—
Nottingham	—	—	—	—	South East Scotland ..	27	83	—	—
Derby	1	3	—	—	East Scotland	3	12	—	—
Lincoln	6	13	—	—	North Scotland	21	54	—	—
South Wales and Monmouthshire.	9	19	—	—	North Ireland	32	77	—	—
North Wales	—	—	—	—	South Ireland	4	9	—	—
Carried forward ..	109	294	9	18	United Kingdom ..	271	724	9	18

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APPENDIX 7.

EARTHENWARE AND CHINA.

A.—From Home Office to Manufacturers.

Home Office,

2nd August, 1900.

I am directed by the Secretary of State to forward to you the enclosed draft of amended Special Rules for factories in which the manufacture of china and earthenware and processes incidental to such manufacture are carried on. You will observe that the rules are at present in draft only; and he wishes it to be clearly understood that his sending them is not to be regarded as a formal service and proposal of the rules under the powers of the Factory Acts, but is a preliminary measure adopted with a view to simplifying future deliberations.

The rules embody the existing rules as settled by arbitration in 1898, with some alterations, and add new rules for regulating the use of lead in the materials employed.

Some of the points of difference from, and additions to, the existing rules have been explained in previous letters, especially those which turn upon the absence or insolubility of lead in the materials employed.

Taking first the new rules for regulating the use of lead, it will be seen that Rule 1 requires the fritting of lead used in the places and processes specified and is in accordance with the proposition made by the manufacturers in their printed "statement" of 26th April, 1899.

Rule 2 imposes a general standard of insolubility based upon the researches of Dr. Thorpe, which have already been brought to the notice of manufacturers many months ago. In pursuance of the arrangements announced in the Circular Letter of the 14th December, 1899 (last paragraph), a large number of samples of glazes and other materials have been forwarded for examination to the Government Laboratory by manufacturers and others, and many of these have been found to conform to the standard proposed. While its general applicability is thus placed beyond question, the Secretary of State understands that there are particular processes and particular kinds of ware for which at present such a standard is thought by manufacturers to be too stringent, and with regard to which it is suggested, moreover, that some relaxation could be coupled with such conditions as would secure the reasonable safety of the persons employed. He is therefore prepared to defer the full operation of this rule until July 1st, 1902, in order to afford the fullest opportunity for manufacturers not only to make arrangements for providing themselves with materials which conform to the standard now to be fixed, but also to consider the question in all its bearings, with whatever expert assistance may be necessary. For certain kinds of work, however, there should be no difficulty in conforming at once, and the Secretary of State will be glad to be informed when this is done. In such cases it will be possible for the manufacturer to take advantage of the proviso in Rule 5.

It is possible there may be certain exceptional cases and processes in which it will not be practicable to apply the provisions of Rules 1 and 2, and that some power to suspend the operation of those rules in such cases will be necessary. The Secretary of State will be prepared to consider any suggestion that may be made to him by the manufacturers on the point.

In the Circular Letter of December 14th last it was intimated that the Secretary of State would be prepared to relax certain of the requirements of the Special Rules in

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respect of places and processes in which no lead is used. Rule 22 gives effect to this, and it is hoped that manufacturers generally will discard the use of even the less harmful forms of lead in those branches in which leadless materials fulfil the necessary conditions of manufacture.

Rule 3 is a necessary corollary to Rules 1, 2, and 22. The samples for analysis will of course be taken in such a manner as to ensure that they represent fairly the materials used.

Coming now to the existing rules, the Secretary of State may briefly notice the principal alterations that have been introduced. Rule 4 is new; but the Secretary of State understands that the requirement is already generally observed. Apart from the addition of explanatory words, Rule 5 differs in its effect from the present Rule 1 mainly in the insertion of *colour blowing* and of general words to cover any new process of a dangerous kind which may come into use. The Secretary of State thinks it will be possible in processes in which the standard of insolubility laid down by Rule 2 has been attained, to allow some relaxation in regard to the employment of young persons, and a proviso is accordingly added to the rule that in such processes the employment of young persons between the ages of 14 and 15 will be permitted.

It will be observed that while extending to adult males, as recommended by the manufacturers, the requirement of periodic medical examination hitherto limited to women and young persons, Rule 6 permits the interval between the examinations in the case of adult males to be extended to three months in any given instance at the discretion of the Certifying Surgeon. This distinction is made at the suggestion of Certifying Surgeons who have had most experience in the North Staffordshire Potteries, and who are of opinion that the men engaged in the lead processes are for the most part old and seasoned hands, for whom a monthly examination would in many instances be unnecessary.

The further alterations in the terms of the rule are designed to make the meaning of the present Rule 2 more clear. The intention was that the Certifying Surgeon should enter his certificate in the register, but this has not in all cases been understood or practised. It will not be necessary to alter the form of register on this account, but the Secretary of State will be glad to have any suggestions for improvement of the form now in use.

In Rule 10, which substantially reproduces the present Rule 6, three additional dusty processes, viz., colour blowing, flat-knocking, and dry-flint sifting, are added to the list of those in which mechanical ventilation is required. In ware cleaning the alternative arrangement for the débris to fall into water is limited to those cases in which no dust is produced.

Rule 11 is concerned with the *preparation of fritts, &c.*, containing lead and requires respirators to be provided if dust is given off. The present rules make no reference to this dangerous branch of work.

Upon Rule 14, which replaces existing Rule 16, the Secretary of State desires to make the following observations. Hitherto Special Rules for this manufacture have thrown upon the operatives the duty of cleansing the floors, &c., of the places in which they work. This appears to be in accordance with the traditional practice in the Potteries, and the rule to that effect was introduced in 1893 at the instance of the workpeople. It is, however, an anomalous arrangement. The statutory responsibility for keeping the factory in a cleanly state is placed by the Acts on the occupier, and the Secretary of State may point out that the usual practice not only in other industries, but also in some china and earthenware works outside Staffordshire, is for the occupier to provide for the cleanliness of his own factory. The present wording is doubly misleading in making it appear (1) that the occupier is freed from responsibility, and (2) that he is *compelled to* make the workmen pay for keeping clean certain parts of the factory. Moreover, recent experience has shown the necessity of extending the provisions for cleansing to places which are not included in the present rules and to which the existing arrangement cannot be applied. It appears to the Secretary of State that the time has come when the question should be placed on a footing more in harmony with the provisions of the Factory Acts, while leaving the occupier, as between himself and his workpeople, to make such arrangements as may be agreed upon. In redrafting this requirement the phrase "after working hours" has been altered to "after all other work has ceased for the day" in.

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order to make it clear that the cleansing, if work has ceased, need not be deferred until after the appointed statutory "period of employment." The Secretary of State may add that it has been suggested that in exceptional cases, such as that of the china dippers' drying room, the sweeping ought to be done (with due precautions) in the morning before work is commenced. Any such exception would require express modification of the rule, and the Secretary of State will be glad to consider any observations upon this point.

The reference to dipping-house boards in Rules 15 and 21 has been modified in order to distinguish more clearly the duties of employers and employed. A requirement has also been added that the "mangle" shall be washed down weekly.

The other modifications are chiefly upon points of detail which do not seem to call for lengthened explanation.

It is scarcely necessary to say in conclusion that the rules are not intended to exhaust the precautions which are desirable in this industry. There are many points in which the health and safety of workpeople depend upon precautions to be taken by the manufacturers in matters of construction and administration, which nevertheless do not lend themselves readily to precise definition as formal requirements. These the Secretary of State leaves with confidence to the discretion of the employers. As a single instance of the kind may be mentioned the danger of allowing workmen to enter kilns after firing, until a sufficient time has elapsed to allow of cooling. The Secretary of State is glad to learn from the reports of the Inspectors that improvements in detail, outside the rules, have been made by individual manufacturers. These, and other suggestions that may arise for the amendment of the conditions under which the dangerous branches of the industry are carried on, will be communicated to manufacturers from time to time.

When the rules have been finally settled for the china and earthenware industry it will be necessary to consider the bearing of some of them upon certain incidental or allied processes when carried on in separate factories. In the case of transfer making, action upon these lines has already been taken.

Lastly, in the Circular Letter of the 14th December last, it was pointed out that the increased duties which will in future devolve upon the Certifying Surgeons under the amended Special Rules would necessitate a revision of the scale of fees prescribed in the Second Schedule to the Factory Act, 1895. The Secretary of State proposes to substitute the following scale :—

> "For each visit, including such examinations, entries in Registers, issue of Certificates, and other duties as may be required by Special Rules, (*a.*) When the examination is at a factory or workshop within a mile from the Certifying Surgeon's Central point, 2*s.* 6*d.* for each visit and 6*d.* for each person after the first five presented at that visit. (*b.*) When the examination is at a factory or workshop more than a mile from the Central point, the above fees with an additional 1*s.* for each mile or portion of a mile beyond the first mile."

I am, &c.,

KENELM E. DIGBY.

B.—Draft Amended Special Rules forwarded to Manufacturers with the above Circular Letter of August 2nd, 1900.

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1. After January 1st, 1901, no material containing lead which has not been fritted shall be used in any of the following places :—

Dipping house or dippers' drying room, or in any of the following processes :—

Ware cleaning after the application of glaze by dipping or other process,
Glost placing,
Colour dusting (whether on-glaze or under-glaze),
Colour blowing (whether on-glaze or under-glaze),

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Groundlaying,
Painting in majolica or other glaze,
Glaze blowing,
Lithographic transfer making,
China scouring,

or in any other place or process in which materials containing lead are used or handled (except for the making of fritts), in the dry state or in suspension in liquid other than oil or similar medium or in the form of spray.

Provided that nothing in this rule shall prevent the use of any material which conforms to the standard of insolubility specified in Rule 2.

2. After July 1st, 1902, no material containing lead which yields to a dilute solution of hydrochloric acid more than 2 per cent. of its dry weight of a soluble lead compound calculated as lead monoxide when determined in the manner described below shall be used in any place or process included in Rule 1.

A weighed quantity of dried material is to be continuously shaken for one hour, at the common temperature, with 1,000 times its weight of an aqueous solution of hydrochloric acid containing 0·25 per cent. of H Cl. This solution is thereafter to be allowed to stand for one hour and to be passed through a filter. The lead salt contained in an aliquot portion of the clear filtrate is then to be precipitated as lead sulphide and weighed as lead sulphate.

3. The occupier shall allow any of Her Majesty's Inspectors of Factories to take at any time sufficient samples for analysis of any material used.

4. No woman, young person or child shall be employed in the mixing of unfritted lead compounds in the preparation or manufacture of fritts, glazes, or colours.

5. No person under 15 years of age shall be employed in any place or process included in Rule 1.

Provided that nothing in this rule shall prevent the employment of young persons over the age of 14 in any place or process (other than china scouring) in which all the materials used conform to the standard of insolubility specified in Rule 2.

6. Every person employed in a place or process included in Rule 1 shall be examined once in each calendar month by the Certifying Surgeon for the district.

Provided that if the Certifying Surgeon so allows by signed certificate in the Register, a male over 18 years of age may be employed in a place or process included in Rule 1 without further examination for three calendar months from the date of such Certificate.

The Certifying Surgeon may order, by signed certificate in the Register, the suspension of any person from employment in any place or process included in Rule 1; and no person after such suspension shall be allowed to work in any place or process included in Rule 1 without a certificate of fitness from the Certifying Surgeon entered in the Register.

7. A register, in the form which has been prescribed by the Secretary of State for use in earthenware and china works, shall be kept, and in it the Certifying Surgeon will enter the dates and results of his visits, the number of persons examined in pursuance of Rule 6, and particulars of any directions given by him. This register shall contain a list of all persons employed in the places and processes included in Rule 1, and shall be produced at any time when required by Her Majesty's Inspector of Factories or by the Certifying Surgeon.

8. The occupier shall provide and maintain suitable overalls and head coverings for all women and young persons employed in the places and processes included in Rule 1.

No person shall be allowed to work in any place or process included in Rule 1, or in the making of fritts, without wearing suitable overalls and head coverings.

All overalls and head coverings when not in use or being washed or repaired, shall be kept by the occupier in proper custody. They shall be washed or renewed at least once a week. Suitable arrangements shall be made for carrying out these requirements.

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A suitable place shall be provided in which the above workers can deposit clothing put off during working hours.

9. No person shall be allowed to keep, or prepare, or partake of any food or drink, or to remain during meal times, in the dipping house or dippers' drying room, or in a place in which is carried on any process included in Rule 1.

The occupier shall make suitable provision to the reasonable satisfaction of the Inspector in charge of the district for the accommodation during meal times of persons employed in such places or processes, with a right of appeal to the Chief Inspector of Factories.

Suitable provision shall be made for the deposit of food brought by the workers.

10. The processes of—

Towing of earthenware,
China scouring,
Flat-knocking,
Dry-flint sifting,
Ground laying,
Colour dusting (whether on-glaze or under-glaze),
Colour blowing (whether on-glaze or under-glaze),
Glaze blowing, or
Transfer making

shall not be carried on without the use of exhaust fans for the effectual removal of dust, or other efficient means for the effectual removal of dust, to be approved in each particular case by the Secretary of State, and under such conditions as he may from time to time prescribe.

In the process of ware cleaning after the dipper, exhaust fans shall be used; or alternatively, if the conditions be such that no dust is produced, arrangements shall be made for any glaze scraped off to fall into water.

In all processes the occupiers shall, as far as practicable, adopt efficient measures for the removal of dust and for the prevention of any injurious effects arising therefrom.

11. No person shall be employed in the mixing of unfritted lead compounds, in the preparation or manufacture of fritts glazes or colours containing lead without wearing a suitable and efficient respirator provided and maintained by the employer; unless the mixing is performed in a closed machine or the materials are in such a condition that no dust is produced.

12. All drying stoves as well as all workshops and all parts of factories shall be effectually ventilated to the reasonable satisfaction of the Inspector in charge of the district.

13. The occupier shall provide and continually maintain sufficient and suitable washing conveniences for all persons employed in the places and processes included in Rule 1, as near as practicable to the places in which such persons are employed.

The washing conveniences shall comprise soap, nail-brushes and towels, and at least one wash-hand basin for every five persons employed as above, with a constant supply of water laid on, with one tap at least for every two basins, and conveniences for emptying the same and running off the waste water on the spot down a waste pipe.

There shall be at least two feet of standing room in front of each basin.

14. The occupier shall see that the floors of workshops and of such stoves as are entered by the workpeople are sprinkled and swept daily; that all dust, scraps, ashes, and dirt are removed daily, and that the work benches, and stairs leading to workshops, are cleansed weekly.

As regards every potter's shop and stove, and every place and process included in Rule 1, the occupier shall cause the cleansing of floors to be done after other work has

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ceased for the day, and in the case of potters' shops, stoves, dipping houses, and majolica painting rooms, by an adult male.

15. The occupier shall cause the boards used in the dipping house, dippers' drying room, or glost placing shop to be cleansed every week, and shall not allow them to be used in any other department, except after being cleansed.

The occupier shall cause every mangle to be washed down every week.

Duties of Persons Employed.

16. All persons employed in the places and processes included in Rule 1 shall present themselves at the appointed time for examination by the Certifying Surgeon as provided in Rule 6.

No person after suspension by the Certifying Surgeon shall work in any place or process included in Rule 1 without a certificate of fitness from the Certifying Surgeon entered in the Register.

17. Every person employed in a place or process included in Rule 1, or in the making of fritts, shall, when at work, wear an overall suit and head covering, which shall not be worn outside the factory or workshop, and which shall not be removed therefrom except for the purpose of being washed or repaired. All overalls and head coverings shall be washed or renewed at least once a week.

The overalls and head coverings, when not being worn, shall be deposited in the place specified by the occupier for the purpose.

Clothing put off during working hours shall be deposited in the place provided for the purpose under Rule 8.

18. No person shall remain during meal-times in the dipping house, dippers' drying room, or in any place in which is carried on any process included in Rule 1; or introduce, keep, prepare, or partake of any food or drink therein at any time.

19. No person shall in any way interfere, without the knowledge and concurrence of the occupier or manager, with the means and appliances provided by the employers for the ventilation of the workshops and stoves and for the removal of dust.

20. No person employed in a place or process included in Rule 1 shall leave the works or partake of meals without previously and carefully cleaning and washing his or her hands.

21. The boards used in the dipping house, dippers' drying room, or glost placing shop shall not be used in any other department, except after being cleansed.

Alternative Rule for Processes in which no Lead or other Poisonous Material is used.

22. If the occupier of the factory to which these rules apply gives, with reference to any place or process (other than china scouring) included in Rule 1, an undertaking that no lead or lead compound or other poisonous material shall be used, the Chief Inspector may approve in writing of the suspension of the operation of Rules 4, 5, 6, 7, 8, 15, 16, 17, and 21, or any of them, in such place or process; and thereupon such rules shall be suspended as regards the place or process named in the Chief Inspector's approval, and in lieu thereof the following rule shall take effect, viz.: no lead or lead compound or other poisonous material shall be used in any place or process so named.

Home Office,
August, 1900.

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C.—From Manufacturers' Joint Committee to Home Office.

JOINT COMMITTEE COMPRISING
THE ENCAUSTIC TILE MANUFACTURERS' ASSOCIATION;
THE STAFFORDSHIRE POTTERIES MANUFACTURERS' ASSOCIATION;
THE LONGTON AND FENTON CHINA MANUFACTURERS' ASSOCIATION;
THE SANITARY WARE MANUFACTURERS' ASSOCIATION;
THE CHINA FURNITURE MANUFACTURERS' ASSOCIATION;
THE JET AND ROCKINGHAM WARE MANUFACTURERS' ASSOCIATION;
THE EARTHENWARE MANUFACTURERS' ALLIANCE.

Tunstall, Staff.,
10th September, 1900.

SIR,

IN response to your letter of August 2nd, 1900, which was issued to all the pottery manufacturers of the United Kingdom, together with the draft amended special rules, I beg to forward for your consideration a number of amendments to the draft rules, together with a statement of the arguments in support of them.

I am directed by my committee to express their appreciation of the action taken by the Home Secretary in submitting the draft rules for the consideration of manufacturers before making formal service of them. My committee would have rejoiced had they found it possible to accept the rules as drafted; but while such a course has been found impossible they trust you will recognise that the amendments they suggest are dictated solely by practical issues of serious importance in the successful conduct of an intricate and detailed manufacture. My committee share to the full the desire of the Home Office to devise such a set of rules for the control of the dangerous portions of our trade, as shall effectually protect our workpeople. The suggestions here made are designed to facilitate the actual working of the rules, and where alterations have been suggested, the object has been solely to render them complete, effective and practical.

These suggestions are the result of the deliberations at repeated meetings and conferences of representatives of the various branches of the trade, and were unanimously accepted at the largest meeting of pottery manufacturers ever held in this country.

NOTES ON THE MANUFACTURERS' AMENDMENTS.

RULE 1.

The alteration of the wording in the rule as drafted is simply a suggestion which seems to manufacturers calculated to express the objects aimed at in such a way as will be best understood by potters.

We propose that the process of china scouring should be deleted from Rule 1 as there is no use of lead compounds in the process. This will necessitate the insertion of the words "or in the process of china scouring" in Rules 5, 6, 7, 8, 14, 16, 17, as suggested in the manufacturers' amendments.

The additions proposed to Rule 1, allowing the use of unfritted lead compounds in a few processes, are designed to cover certain cases in which the full acceptance of Rule 1 would inflict serious hardship on manufacturers without any real gain to the health of the workpeople.

The preparation of glost firing trials; the washing of saggars, kiln bats, cranks and boxes, or other receptacles for holding the ware during the glost firing; the washing and stopping of the interior walls of majolica kilns; the prepartion of "flows" and "smears" used for producing vapours of lead compounds in the saggars during firing are instances of a number of minor but very important processes carried on more or less in every pottery works, and the success of which depends entirely on the fluidity or the volatility of lead compounds.

For these purposes there is no doubt that unfritted lead compounds are vastly superior to fritted ones. There can be no objection to leaving these processes to be

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carried on as at present, because they are not the *dangerous* processes of our trade, neither are they continuous processes like those specified in Rule 1, many of them indeed being only used at intervals.

The use of a coating of red lead to repair "scummed" or defective pieces can be best illustrated by reference to the magnificent deep blue known as "Mazarine" blue, or Derby "Japan" blue. If the coat of cobalt oxide is too thickly applied the ware comes out "freckled" or dulled by dark shiny patches. A thin wash of red lead in water or in oil is put over this, and on re-firing the piece is generally recovered.

The cases one would cite of pottery in which manufacturers should not be expected to frit all their lead are those in which artistic excellence is a point of the utmost importance. There may be extreme cases also in the manufacture of ordinary glazes where such a relaxation ought to be allowed, but we would suggest that all such exceptions should be allowed only on the merits of each particular case, and then under such conditions as would prevent the abuse of the exception.

Rule 2.

In support of the committee's recommendation that no decision should yet be taken as to a standard of solubility we wish to make the following observations :—

The Home Office should clearly recognise that they are asking for a complete revolution in the existing methods of glaze making, which obtain both in this country and on the continent. For the first time in the history of pottery, English manufacturers are asked to accept conditions which have never been employed by any potters in the world, the enforcement of which may have the most disastrous consequences on the excellence of their products.

It must be borne in mind that on the continent some of the largest manufacturers have been in the habit of using such compounds as lead bisilicate, according to Dr. Thorpe, with absolute immunity. It seems to us, therefore, unreasonable that English potters should for a moment be asked to accept a lower standard of solubility.

The experiments of Dr. Thorpe are not, in our opinion, of so complete and practical a character as will warrant the manufacturers in accepting the standard proposed. Several manufacturers who have made fritts of low solubility on the large scale find that many practical difficulties arise which could not have been anticipated. Mr. Bernard Moore and Mr. W. Burton, who have had considerable experience in this matter, have been appointed by the General Meeting of manufacturers recently held at Stoke-on-Trent to attend at the Home Office, and discuss with Dr. Thorpe and the chief officials of the Home Office some of the practical points involved. These gentlemen are prepared to do so on receiving reasonable notice.

Rule 3.

The amendments to Rule 3 will explain themselves. Manufacturers are only anxious to have a clear definition of what samples the inspector is to take, and as to how those samples shall be collected and treated. This will prevent samples of fritts or other materials bring taken which do not represent the actual glaze as used.

Rule 5.

Manufacturers recognise with satisfaction the desire of the Home Office to remove one of the difficulties in the way of training young persons, by allowing their employment at 14 years of age, when a low standard of insolubility can be reached ; as, however, we are not able to accept the standard proposed, we ask for the insertion of the words "satisfactory to the Home Secretary," believing that some standard not so low as the 2 per cent. would satisfy the actual requirements of the case.

Rule 6.

We consider it unwise to make any distinction between adult males and other workers on the point of medical examination. There would be considerable difficulty in having the women examined oftener than the men. There can be no doubt that the rule

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has operated beneficially in regard to women and young persons, and we are strongly of opinion that equally beneficial results will follow a monthly examination of adult males. As the examination is an undoubted safeguard, we entirely fail to see why adult males should be deprived of its benefits.

The addition of the provision "that no employer shall incur any liability under this rule in the event of suspension at another works being concealed by a worker," seems to us a very necessary one. It is impossible for the manufacturer in this business to know whether he is engaging a worker who has been previously suspended elsewhere, and it should certainly be made an offence for the worker to conceal such fact.

Moreover, in the Potteries district the same worker may be employed at more than one factory, working perhaps only a day, or at the most two days, a week at each of them.

Rule 7.

The additions to Rule 7 are designed to define more exactly the circumstances under which registers may be called for, and to prevent any friction between manufacturers and officials.

Rule 8.

The words "mixing of unfritted lead compounds" cover all that is required by the Home Office and all that is dangerous, whereas the words "making of fritts" would cover the men who are employed in filling and emptying the fritt kiln. It is clearly impossible that these men should wear overalls, as there would be very great likelihood of their taking fire.

The addition to the last paragraph of Rule 8 is designed to cover the *drawing* of the finished ware from the glost oven. The process of drawing is quite rightly excluded by the Home Office, as no danger can arise to the operative from the handling of the finished goods, but in all cases the ware is drawn into the glost placing shed, or into the dipping house, and so it becomes necessary to exempt the drawers from the obligation to wear overalls. The dipping or placing do not go on while the oven is being drawn.

Rule 9.

Manufacturers consider the prohibition of the use of tobacco in addition to food and drink is a most important and even obviously necessary reform.

The handling of the pipe in smoking or the tobacco in chewing or snuffing, is just as dangerous as the handling of sweets or food. In our opinion this is a most fruitful source of plumbism among male dippers and glost placers, and one which cannot be stopped unless prohibited categorically by rule. Many manufacturers have tried to stop smoking in the places specified, but have been met with the remark that there is nothing in the rules against it.

Manufacturers must press for the re-instatement of the clause that the provision of accommodation during meal times may be "in any room or rooms on the premises other than those referred to in Rule 1." This clause was granted to manufacturers as a result of the last arbitration. The rule has been found to work very satisfactorily, and we are convinced that the clause is so practical and so obviously to the benefit of the workpeople that we cannot understand why the Home Office should have omitted it from the draft rules.

Rule 10.

It is proposed to delete the processes of flat knocking and dry flint sifting from this rule.

With reference to flat knocking we recognise that the process is a dusty one, but we would like the Home Office to inform us what they will consider suitable and efficient means for the removal of dust in this process, The difficulties of dealing with it by mechanical means are very great indeed—far greater than in any process hitherto dealt

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with. The process is neither a continuous one nor is it one in which the dust is of a poisonous nature. It is one of those cases in which we believe that the experience of the Home Office gathered from many trades might be of the greatest benefit to the trade.

With regard to dry flint sifting, we consider that enclosure of the sieve will be in itself a sufficient protection without resort to a more elaborate mechanical contrivance.

We propose the insertion of the word "reasonable" in this rule, as it is already inserted by the Home Office in Rule 9 of the present draft rules.

With regard to the process of ware cleaning, we propose to restore the arrangement at present existing, which is undoubtedly satisfactory.

RULE 11.

The substitution of the word "engaged" for the word "employed" in this rule is suggested in order to throw the onus of wearing a respirator on the man employed. As only adult males are allowed to work at this occupation they should clearly recognise their responsibility for carrying out a rule designed for their special benefit.

This also covers the addition of the words in Rule 17.

RULE 14.

We have read the portions of your letter dealing with this rule with the utmost care, and our intention is while accepting cordially the spirit of your remarks to make it clear by placing the duty of seeing that workshops are cleansed, equally on employers and employed, that *everybody* has an interest in the due observance of the rules.

The old Rule 16 was accepted in the first instance at the suggestion of the workers themselves, and has been found to work admirably. So long as the workers are responsible, or so long as they pay even a portion of the charge, they will be much more interested in seeing that the work is thoroughly done. If the duty is to rest solely on the employer it will become almost a point of honour on the part of the workers not to point out that the sweeping is being neglected. Certain cases have already arisen in which the workers preferred to pay a portion of the sweeper's wages in order, as they said, that they would be able to make the sweeper do his work properly.

We suggest an important alteration in this rule in the words specifying that the sweeping shall be done "at a time when no other work is being carried on in such room." This alteration is rendered necessary by the specific inclusion of groundlaying shops, glost placing sheds, &c., in which it is not possible to have one fixed time for sweeping, and where it often happens that it is not possible to do the sweeping at night.

These workshops are frequently left at night full of ware in such a stage of preparation that dust falling on it would irrevocably spoil it. The object of the rule is to insure that the places shall be regularly swept, and at a time when the workroom is unoccupied except by the sweeper. Such a time might be in the middle of the day, or at some other hour according to the exigencies of the work.

It is the custom at the present time in certain works to sweep some of the shops, while they are empty, more than once a day. Such a desirable custom would be summarily put an end to by the wording of the draft rule.

RULE 15.

We propose to omit the paragraph relating to the cleansing of mangles, because—

1st. The mangle itself is not a disseminator of dust. Such dust as arises in the use of a mangle simply occurs on the fingers of the "takers off," and the danger from this is covered by the rule relating to washing.

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2nd. It is found that there are many different forms of mangle in use in the trade, and in the case of several of them it is impossible to wash them down.

On both these grounds we think there can be no objection to leaving the cleansing of the mangle an open question for each manufacturer to deal with under draft Rule 14, and in the best way possible with his own form of mangle.

DUTIES OF PERSONS EMPLOYED.

The only suggestions we make with regard to Rules 16 to 21 inclusive are such as are clearly consequent on the alterations already referred to in the rules dealing with the duties of employers.

The suggestion of the new Rule 20a has already been dealt with in connection with Rule 14.

I enclose 12 copies of a statement showing in parallel columns the draft Special Rules as proposed and the alterations suggested.

I am, &c.,

ARTHUR P. LLEWELLYN.

D.—From Home Office to Manufacturers.

Home Office, London, S.W.,

February 1st, 1901.

SIR,

IN pursuance of section 8 of the Factory and Workshop Act, 1891, and of the Orders of the Secretary of State dated 24th December, 1892, and 7th May, 1898, I beg to forward a copy of amended Special Rules applicable to your works, and unless within twenty-one days after receipt of this I receive a notice in writing that you object to the rules they will become established. I propose these rules to you in substitution for those dated 1898 which are now in force in your works.

You will observe that the present draft differs in some respects from that which was enclosed in Sir Kenelm Digby's letter of August 2nd, 1900. Since that date the Department has discussed with the Joint Committee of Manufacturers not only the matters arising under Rules 1, 2, and 14, with respect to which it was intimated in Sir Kenelm Digby's letter that the Secretary of State was prepared to consider the exceptional treatment of certain processes, but also a number of other points of amendment which were proposed.

As the outcome of that discussion it appears to the Secretary of State that with few exceptions there should be no difficulty in arriving at agreement, and he has informed the Joint Committee that subject to any considerations that may be brought forward by the workpeople in the event of arbitration he will be prepared to assent to modification. But as regards the standards to be fixed under Rule 2 there is more serious divergence of opinion. The Secretary of State is advised that some relaxation of the 2 per cent. standard will be proper in the case of coloured glazes, but he is satisfied that he ought not to accept the suggestions of the Joint Committee (1) that the standard should be 5 per cent. instead of 2 per cent., and (2) that it should apply to white and light coloured glazes only. There being no prospect of agreement upon this essential point, the Secretary of State thinks that it must be left to be settled by arbitration, when the expert evidence can be fully heard.

It is desired that the rules should, as far as possible, be uniform in all earthenware and china works, and if arbitration takes place and results in modification of any of the rules, the Secretary of State would propose to take steps for the establishment of the rules so modified in all such works alike.

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As regards the glazes used in coarse ware factories, it appears that galena, an insoluble ore of lead, is employed in many instances, and is applicable to such ware in general. It fulfils the conditions of Rules 1 and 2.

I shall be obliged if you will acknowledge the receipt of the rules now sent. A Form and addressed envelope are enclosed for the purpose, and it is not necessary to affix a stamp.

I am, &c.,

ARTHUR WHITELEGGE,

Chief Inspector of Factories.

E.—From Home Office to Manufacturers of Coarse Ware.

Home Office,

14th February, 1901.

EARTHENWARE AND CHINA SPECIAL RULES.

SIR,

IN forwarding the enclosed papers I am directed by the Secretary of State to add with reference to former correspondence that, while he is advised that Special Rules are necessary in the case of the manufacture of coarse ware, he will, if so desired, be prepared to defer the consideration of the special points which arise in connection with that branch of the manufacture until after the rules now proposed are settled as regards the other and larger branches, in cases where he is assured (1) that only coarse ware is made in the works; (2) that lead is not and will not be used except in the form of galena.

I am, &c.,

ARTHUR WHITELEGGE,

Chief Inspector of Factories.

F.—From Certain Manufacturers to Home Office.

To ARTHUR WHITELEGGE, Esq., M.D.,
H.M. Chief Inspector of Factories,
Home Office, Whitehall, London, S.W.

FACTORY AND WORKSHOPS ACTS, 1878 TO 1895.

SPECIAL RULES.

The Manufacture of Earthenware and China.

We, the undersigned, hereby give you notice that we object to Numbers 1, 2, 3, 5, 6, 8, 9, 10, 13, 14, 16, and 22 of the Special Rules served upon us by you, and proposed to be made applicable to our works. We object to Rule 2 *in toto* on the ground (*inter alia*) that neither the Home Office nor manufacturers have found the requirements thereof to be practicable in general use, and we suggest that numbers 1, 3, 5, 6, 8, 9, 10, 13, 14, 16, and 22 of such rules be each modified respectively in the manner set forth in the schedule attached to this notice of objection. We also suggest an additional Rule 20*a*.

Dated this 6th day of March, 1901.

(Signature)

(Address)

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Schedule before referred to.

FACTORY AND WORKSHOPS ACTS, 1878 TO 1895.

SPECIAL RULES.

The Manufacture of Earthenware and China.

Proposed Amended Special Rules.

DUTIES OF OCCUPIERS.

1. After July 1st, 1901, no material containing lead which has not been fritted shall be used in any of the following places :—

Dipping house or dippers' drying room, or in any of the following processes :—
Ware cleaning after the application of glaze by dipping or other process,
Glost placing,
Colour dusting (whether on glaze or underglaze),
Colour blowing (whether on glaze or underglaze),
Groundlaying,
Painting in majolica or other glaze,
Glaze blowing,
Lithographic transfer making,

or in any other place or process in which materials containing lead are used or handled in the dry state (except for the making of fritts) or in the form of spray, or in suspension in liquid other than oil or similar medium.

Provided that nothing in this rule shall prevent the use of any ore or chemical compound of lead which without the admixture of any other material conforms to the standard of insolubility specified in Rule 2.

2. After July 1st, 1902, no glaze shall be used which yields to a dilute solution of hydrochloric acid more than 2 per cent. of its dry weight of a soluble lead compound calculated as lead monoxide when determined in the manner described below :—

A weighed quantity of dried material is to be continuously shaken for one hour, at the common temperature, with 1,000 times its weight of an aqueous solution of hydrochloric acid containing 0·25 per cent. of H Cl. This solution is thereafter to be allowed to stand for one hour and to be passed through a filter. The lead salt contained in an aliquot portion of the clear filtrate is then to be precipitated as lead sulphide and weighed as lead sulphate.

3. The occupier shall allow any of His Majesty's Inspectors of Factories to take at any time sufficient samples for analysis of any material in use or mixed for use provided that the occupier may at the time the sample is taken and on providing the necessary appliances require the Inspector to take, seal and deliver to him a duplicate sample.

Suggested Modifications by Occupiers.

1. After July 1st, 1901, no material containing lead which has not been fritted *with some siliceous substance* shall be used in any of the following places :—

Dipping house or dippers' drying room, or in any of the following processes :—
Ware cleaning after the application of glaze by dipping or other process,
Glost placing,
Colour dusting (whether on glaze or underglaze),
Colour blowing (whether on glaze or under glaze),
Groundlaying,
Painting in majolica or other glaze,
Glaze blowing,
Lithographic transfer making,

or in any other place or process in which materials containing lead are used or handled in the dry state (except for the making of fritts) or in the form of spray, or in suspension in liquid other than oil or similar medium.

Provided that nothing in this rule shall prevent the use of any *unfritted* material which conforms to *an agreed* standard of insolubility *for such material.*

Provided also that the Secretary of State shall issue a general certificate (to remain in operation concurrently with these rules) exempting from the operation of this rule certain subsidiary processes which have been already communicated to the Home Office by manufacturers.

2. *Objected to in toto.*

3. The occupier shall allow any of His Majesty's Inspectors of Factories to take at any time sufficient samples for analysis of any material in use or mixed for use provided that the occupier may at the time the sample is taken and on providing the necessary appliances require the Inspector to take, seal and deliver to him a duplicate sample. *But no analytical result shall be disclosed or published in any way except such as shall be necessary to establish a breach of these rules.*

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Proposed Amended Special Rules.	Suggested Modifications by Occupiers.
4. No woman, young person or child shall be employed in the mixing of unfritted lead compounds in the preparation or manufacture of fritts, glazes, or colours.	4. *Approved.*
5. No person under 15 years of age shall be employed in any place or process included in Rule 1, or in the process of china scouring. Provided that nothing in this rule shall prevent the employment of young persons over the age of 14 in any place or process (other than china scouring) in which all the materials used conform to the standard of insolubility specified in Rule 2.	5. No person under 15 years of age shall be employed in any place or process included in Rule 1, or in the process of china scouring. Provided that nothing in this rule shall prevent the employment of young persons over the age of 14 in any place or process (other than china scouring) in which all the materials used conform to *these rules*.
6. Every person employed in a place or process included in Rule 1, or in the process of china scouring, shall be examined once in each calendar month by the Certifying Surgeon for the district. The Certifying Surgeon may order, by signed certificate in the Register, the suspension of any person from employment in any place or process included in Rule 1; or in the process of china scouring, and no person after such suspension shall be allowed to work in any place or process included in Rule 1, or in the process of china scouring, without a certificate of fitness from the Certifying Surgeon entered in the Register.	6. Every person employed in a place or process included in Rule 1, or in the process of china scouring, shall be examined once in each calendar month by the Certifying Surgeon for the district. The Certifying Surgeon may order, by signed certificate in the Register, the suspension of any person *other than an adult male* from employment in any place or process included in Rule 1, or in the process of china scouring, and no *such* person after such suspension shall be allowed to work in any place or process included in Rule 1, or in the process of china scouring, without a certificate of fitness from the Certifying Surgeon entered in the Register.
7. A Register, in the form which has been prescribed by the Secretary of State for use in earthenware and china works, shall be kept, and in it the Certifying Surgeon will enter the dates and results of his visits, the number of persons examined in pursuance of Rule 6, and particulars of any directions given by him. This register shall contain a list of all persons employed in the places and processes included in Rule 1, or in the process of china scouring, and shall be produced at any time when required by His Majesty's Inspector of Factories or by the Certifying Surgeon.	7. *Approved.*
8. The occupier shall provide and maintain suitable overalls and head coverings for all women and young persons employed in the places and processes included in Rule 1, or in the process of china scouring. No person shall be allowed to work in any place or process included in Rule 1, in the process of china scouring or in the mixing of unfritted lead compounds, without wearing suitable overalls and head coverings. All overalls, head coverings, and respirators when not in use or being washed or repaired shall be kept by the occupier in proper custody. They shall be washed or renewed at least once a week. Suitable arrangements shall be made for carrying out these requirements. A suitable place, other than that provided for the keeping of overalls, head coverings, and respirators, shall be provided in which the above workers can deposit clothing put off during working hours. Provided that nothing in this rule shall render it obligatory on any person engaged in drawing glost ovens to wear overalls and head coverings	8. The occupier shall provide and maintain suitable overalls and head coverings for all women and young persons employed in the places and processes included in Rule 1, or in the process of china scouring. No person shall be allowed to work in any place or process included in Rule 1, in the process of china scouring or in the mixing of unfritted lead compounds without wearing suitable overalls and head coverings. All overalls, head coverings, and respirators when not in use or being washed or repaired, shall be kept by the occupier in proper custody. They shall be washed or renewed at least once a week. Suitable arrangements shall be made for carrying out these requirements. A suitable place other than that provided for the keeping of overalls, head coverings, and respirators shall be provided in which the above workers can deposit clothing put off during working hours. Provided that nothing in this rule shall render it obligatory on any person engaged in drawing glost ovens to wear overalls and head coverings. *Each respirator shall bear the distinguishing mark of the worker to whom it is supplied.*
9. No person shall be allowed to keep, or prepare, or partake of any food or drink, or tobacco, or to remain during meal times in the dipping	9. No person shall be allowed to keep, or prepare, or partake of any food or drink, or tobacco, or to remain during meal times, in the dipping

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Proposed Amended Special Rules.	Suggested Modifications by Occupiers.
house or dippers' drying room, or in a place in which is carried on any process included in Rule 1, or china scouring.	house or dippers' drying room, or in a place in which is carried on any process included in Rule 1, or china scouring.
The occupier shall make suitable provision to the reasonable satisfaction of the inspector in charge of the district for the accommodation during meal times of persons employed in such places or processes, with a right of appeal to the Chief Inspector of Factories. Such accommodation shall not be provided in any room or rooms which are included in Rule 1, or in which china scouring is carried on or in a lavatory.	The occupier shall make suitable provision to the reasonable satisfaction of the inspector in charge of the district for the accommodation during meal times of persons employed in such places or processes, with a right of appeal to the Chief Inspector of Factories. Such accommodation shall not be provided in any room or rooms which are included in Rule 1, or in which china scouring is carried on.
Suitable provision shall be made for the deposit of food brought by the workers.	Suitable provision shall be made for the deposit of food brought by the workers.
	N.B.—The reason why manufacturers object to the insertion of the words "or in a lavatory" is that in some of the most modern and best appointed Factories there are a few wash hand basins at one end of the dining room for the convenience of the workpeople.
10. The processes of— Towing of earthenware, China scouring, Flat-knocking, Dry-flint sifting, Ground laying, Colour dusting (whether on-glaze or under-glaze), Colour blowing (whether on-glaze or under-glaze), Glaze blowing, or Transfer making shall not be carried on without the use of exhaust fans for the effectual removal of dust, or other efficient means for the effectual removal of dust, to be approved in each particular case by the Secretary of State, and under such conditions as he may from time to time prescribe.	10. The processes of— The towing of earthenware, China scouring, Ground laying, Colour dusting (whether on-glaze or under-glaze), Colour blowing (whether on-glaze or under-glaze), Glaze blowing, or Transfer making shall not be carried on without the use of exhaust fans for the effectual removal of dust, or other efficient means for the effectual removal of dust, to be approved in each particular case by the Secretary of State, and under such conditions as he may from time to time prescribe.
In the process of ware cleaning after the dipper, exhaust fans shall be used; or alternatively, if the conditions be such that no dust is produced, arrangements shall be made for any glaze scraped off to fall into water.	In the process of ware cleaning after the dipper, exhaust fans shall be used; or alternatively, arrangements shall be made for any glaze scraped off to fall into water.
	Flat knocking and fired-flint-sifting shall be carried on only in enclosed receptacles which shall be connected with an efficient fan or other efficient draught unless so contrived as to prevent the escape of injurious dust.
In all processes the occupier shall, as far as practicable, adopt efficient measures for the removal of dust, and for the prevention of any injurious effects arising therefrom.	In all processes the occupier shall, as far as practicable, adopt efficient measures for the removal of dust and for the prevention of any injurious effects arising therefrom.
11. No person shall be employed in the mixing of unfritted lead compounds, in the preparation or manufacture of fritts glazes or colours containing lead without wearing a suitable and efficient respirator provided and maintained by the employer; unless the mixing is performed in a closed machine or the materials are in such a condition that no dust is produced.	11. *Approved.*
12. All drying stoves as well as all workshops and all parts of factories shall be effectually ventilated to the reasonable satisfaction of the inspector in charge of the district.	12. *Approved.*
13. The occupier shall provide and continually maintain sufficient and suitable washing conveniences for all persons employed in the places	13. The occupier shall provide and continually maintain sufficient and suitable washing conveniences for all persons employed in the places

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Proposed Amended Special Rules.	Suggested Modifications by Occupiers.
and processes included in Rule 1, or in the process of china scouring, as near as practicable to the places in which such persons are employed.	and processes included in Rule 1, or in the process of china scouring, as near as practicable to the places in which such persons are employed.
The washing conveniences shall comprise soap, nail-brushes, and towels, and at least one wash-hand basin for every five persons employed as above, with a constant supply of water laid on, with one tap at least for every two basins, and conveniences for emptying the same and running off the waste water on the spot down a waste pipe.	The washing conveniences shall comprise soap, nail brushes, and towels, and at least one wash-hand basin for every five persons employed as above, with a constant supply of water laid on, with one tap at least for every two basins, and conveniences for emptying the same and running off the waste water on the spot down a waste pipe.
There shall be at least two feet of standing room in front of each basin.	
14. The occupier shall see that the floors of workshops and of such stoves as are entered by the workpeople are sprinkled and swept daily; that all dust, scraps, ashes, and dirt are removed daily, and that the mangles, work benches, and stairs leading to workshops are cleansed weekly.	14. The occupier shall see that the floors of workshops and of such stoves as are entered by the workpeople are sprinkled and swept daily; that all dust, scraps, ashes, and dirt are removed daily, and that the mangles, work benches, and stairs leading to workshops are cleansed weekly.
As regards every potter's shop and stove, and every place and process included in Rule 1, and the process of china scouring, the occupier shall cause the cleansing of floors to be done after other work has ceased for the day, and in the case of potters' shops, stoves, dipping houses, and majolica painting rooms by an adult male.	As regards every potter's shop and stove, and every place and process included in Rule 1, or in the process of china scouring, the occupier shall cause the cleansing of floors to be done *at a time when no other work is being carried on in such room*, and in the case of potters' shops, stoves, dipping houses, and majolica painting rooms, by an adult male, *employed and paid by the workers and approved by the employers.*
	Provided that in no case shall work be resumed in such room within half-an-hour after such cleaning.
15. The occupier shall cause the boards used in the dipping house, dippers' drying room, or glost placing shop to be cleansed every week, and shall not allow them to be used in any other department, except after being cleansed.	15. *Approved.*
DUTIES OF PERSONS EMPLOYED.	DUTIES OF PERSONS EMPLOYED.
16. All persons employed in the places and processes included in Rule 1, or in the process of chin scouring, shall present themselves at the appointed time for examination by the Certifying Surgeon as provided in Rule 6.	16. All persons employed in the places and processes included in Rule 1, or in the process of china scouring, shall present themselves at the appointed time for examination by the Certifying Surgeon as provided in Rule 6.
No person after suspension by the Certifying Surgeon shall work in any place or process included in Rule 1, or in the process of china scouring without a certificate of fitness from the Certifying Surgeon entered in the Register.	No person *other than an adult male* after suspension by the Certifying Surgeon shall work in any place or process included in Rule 1, or in the process of china scouring, without a Certificate of fitness from the Certifying Surgeon entered in the Register.
17. Every person employed in a place or process included in Rule 1, or in the process of china scouring, or in the mixing of unfritted lead compounds, shall, when at work, wear an overall suit and head covering, and also a respirator when so required by Rule 11, which shall not be worn outside the factory or workshop, and which shall not be removed therefrom except for the purpose of being washed or repaired. All overalls and head coverings shall be washed or renewed at least once a week.	17. *Approved.*
The hair must be so arranged as to be fully protected from dust by the head covering.	
The overalls, head coverings, and respirators when not being worn, shall be deposited in the place specified by the occupier for the purpose.	
Clothing put off during working hours shall be deposited in the place provided for the purpose under Rule 8.	

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Proposed Amended Special Rules.	Suggested Modifications by Occupiers.
18. No person shall remain during meal-time in the dipping house, dippers' drying room, or in any place in which is carried on any process included in Rule 1, or in the process of china scouring; or introduce, keep, prepare, or partake of any food or drink, or tobacco therein at any time.	18. *Approved.*
19. No person shall in any way interfere, without the knowledge and concurrence of the occupier, or manager, with the means and appliances provided by the employers for the ventilation of the workshops and stoves and for the removal of dust.	19. *Approved.*
20. No person employed in a place or process included in Rule 1, or in the process of china scouring, shall leave the works or partake of meals without previously and carefully cleaning and washing his or her hands. No person employed shall remove or damage the washing conveniences provided under Rule 13.	20. *Approved.*
	20a. *The persons employed shall be responsible jointly with tthe occupier for the daily sprinkling and sweeping of the floors of workshops and of such stoves as are entered by the workpeople; and for the daily removal of dust, scraps, ashes, and dirt; and for the weekly cleansing of work benches and of stairs leading to workshops.* *Each person shall be responsible for the cleansing of that portion of the room in which he or she is employed.*
21. The boards used in the dipping house, dippers' drying room, or glost placing shop shall not be used in any other department, except after being cleansed.	21. *Approved.*
ALTERNATIVE RULE FOR PROCESSES IN WHICH NO LEAD OR OTHER POISONOUS MATERIAL IS USED.	ALTERNATIVE RULE FOR PROCESSES IN WHICH NO LEAD OR OTHER POISONOUS MATERIAL IS USED.
22. If the occupier of the factory to which these Rules apply gives, with reference to any place or process included in Rule 1, an undertaking that no lead or lead compound or other poisonous material shall be used, the Chief Inspector may approve in writing of the suspension of the operation of rules 4, 5, 6, 7, 8, 15, 16, 17 and 21, or any of them, in such place or process; and thereupon such rules shall be suspended as regards the place or process named in the Chief Inspector's approval, and in lieu thereof the following rule shall take effect, viz.: no lead or lead compound or other poisonous material shall be used in any place or process so named.	22. If the occupier of the factory to which these rules apply gives, with reference to any place or process included in Rule 1, an undertaking that no lead or lead compound or other poisonous material shall be used, the Chief Inspector may approve in writing of the suspension of the operation of rules 5, 6, 7, 8, 15, 16, 17 and 21, or any of them, in such place or process; and thereupon such rules shall be suspended as regards the place or process named in the Chief Inspector's approval, and in lieu thereof the following rule shall take effect. viz.: no lead or lead compound or other poisonous material shall be used in any place or process so named. *For the purpose of this rule a leadless glaze shall be defined as one that contains no more than one per cent. of lead oxide.*

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APPENDIX 8.

BOTTLING OF AERATED WATERS.

A.—Report by Simeon Snell, F.R.C.S., Ed., J.P., Ophthalmic Surgeon to the Sheffield Royal Infirmary.

SIR,

IN your letter of November 8th, 1900, you desired that I would enquire and report as to the reality and extent of the alleged danger of injury to eyesight occasioned by the use of masks and guards by operatives in aërated water factories. In accordance with this request I have investigated the matter, and beg now to submit the following report.

Altogether I have inspected 17 factories, in Sheffield, London, Manchester, and Norwich. I believe the largest factories in this industry will be found amongst those inspected by me.

The total number of operatives employed at these works reached, in round figures, something like a total of 3,500. In the busy season, however, embracing the spring and summer months, the employés at the same factories would be greatly in excess of the figures given, being in reality double that number, or more. In the places visited in London and Norwich I had the very valuable co-operation of Dr. T. M. Legge, Medical Inspector of Factories. At Norwich, Mr. Shinner, H.M. Inspector of Factories, also assisted, and in Sheffield, Mr. Taylor, H.M. Inspector of Factories, accompanied me in my inspections.

At each place visited a general inspection of the factory has been made, the manager has been interviewed, the working places have been visited, the various machines inspected, and practically the whole of the operatives have been seen at their work. In addition to this, however, at each factory several of the employés have been closely examined and particularly questioned as to whether or not they suffered in any way in their sight from wearing masks or eye-guards, or whether, indeed, they had any complaint to make in connection with their use. At the small places practically everyone employed has been examined. In the large factories I have gone into the works and interrogated haphazard the employés, and when any selection has been made it has been that those were chosen who were named as having worked the longest and as being the most experienced. On some occasions, also, I entered the workrooms unaccompanied by any responsible authority connected with the management, to secure in this way as unfettered an expression of opinion as possible on the part of the employés. In fact, it may be said that, with few exceptions, the operatives were all interrogated outside the hearing of the manager or foreman. The number closely examined in the manner mentioned is 149.

This enquiry shows that there is no evidence of the protectors causing injury to eyesight, and this is particularly demonstrated by the evidence of those operatives who have been referred to as having been more particularly questioned. The periods during which these workpeople had been employed varied considerably. Some had only been in the trade a few months, whilst others had been engaged in aërated water factories for many years. The experience of the former in the use of eye-guards was, of course, limited, but that of the latter was often so extensive as to render most valuable assistance in the enquiry. It is not necessary to burden this report with a detailed record of the whole of these 149 workmen. The particulars only will be given of those who have been engaged in the trade for several years, and the following records refer to those who had been so employed for periods ranging from 8 to 40 years.

40 years. S.E., aged 48, has worked with his present firm for this period. He has been a bottler for 30 years, and has worn goggles 39 years. They have not affected his eyesight. No one to his knowledge ever suffered at all. He uses them all day. He finds they do not interfere with sight, and so goes on using them.

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33 years. S.J.M., aged 43, has been with his present firm for this length of time, and is now a foreman. He has worn goggles mostly, and his eyesight has not been affected in the least. He has never heard of any complaint of injury to eyesight or headache, and he has had many hundreds of workpeople pass under his notice.

27 years. P.B., aged 40, has worked for this period with his present firm. He was a foreman. In 1898 he was passing by a machine when a bottle burst, and hit his left eye, and it had to be removed.

26 years. E.H.N., aged 44, has worked for these years with his present firm. He has worn a mask or goggles all the time. He has good sight and can read with comfort, which he does a good deal after work. He does not find his eyes affected by the protectors.

25 years. J.P., aged 38, a foreman, has been in the trade for this space of time, though at his present place only 20 months. He wears goggles if near a machine, and has had a good deal of experience. As far as sight is concerned, his eyes are not affected, and he would not object to use protectors. In his opinion there is no valid objection to wearing protectors, and his experience is that there is no real complaint against them as to injury to eyesight. He mentioned the case of a girl who lost her sight through failure to wear a mask because she objected to it, though not because it injured her eyesight. He knows no one at his place who complains of protectors acting injuriously on eyesight.

25 years. J.D.M., aged 56, has worked for this period at his present place, at bottling mostly, and has worn a mask all along. He says he has very good sight, is able to read without glasses, and does not find that the protectors affect his sight at all. His eyes are quite comfortable after a day's work.

17 years. W.D., aged 40, has worked in the trade for this length of time, and has worn a mask for 10 years. He is employed at bottling. His eyes are all right after wearing a mask. He does not find any discomfort in reading when he gets home in the evening. He has had cuts on the hand, but not on the face.

15 years. A.K., aged 34, has worked for these years as a bottler at her present place. She has worn either eye goggles or a mask during that time. No effect on eyesight, and eyes are as good as ever. Wears a mask all day, and does not feel uncomfortable at night.

14 years. M.M., aged 37, has worked at one place during 20 years. At first she worked for seven years, but was often away when she had children, and then came back again. She has now been working for seven months, previous to which she was away for two years. She is a wirer now, but has done bottling and other work. She has worn a mask several years, has very good eyes, which are all right when she gets home, and she makes no complaint, nor does she know of anyone who does complain. Perhaps, altogether, she has worked at this place for 14 years.

12 years. T.F., aged 43, has worked for this period with one firm. He is a bottler, and wears goggles. He does not complain of injury to eyesight or headache, has very good eyes, and has no complaint to make of the protectors.

13 years. A.C., aged 28, has worked for this space of time with one firm, as a wirer, and has worn a mask all the time. She has good eyes, reads and sews with comfort, and does not think the mask injuriously affects her eyes.

11 years. G.J., aged 32, has worked so long for one firm, and has used goggles the whole day through for that time. He is a wirer. He reports no injurious effect on eyesight.

11 years. F.E. has worked for this period with one firm, and has worn a mask regularly. Her eyes are as good as ever, and she can read as well as ever she could at night when she gets home.

10 years. W. is a foreman, and has worked with one firm for this number of years. He has worn a mask during that time, though not quite so much as the others. He finds no fault, and says it is only at first there is any complaint; one soon gets accustomed to it. He hears of no complaint as to injury to sight.

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10 years. F.B., aged 25, has worked for this period at one place, and has worn a mask six or seven hours a day, when machine bottling. He does not suffer from his eyes.

9 years. A.B., aged 33, has worked for this period at one place, and has worn a mask all along. She is a sighter now, but has done bottling, washing, &c. She has very good eyes, makes no complaint, never finds anything amiss with her eyes, and reads with comfort. Does not hear of girls complaining.

9 years. A.H. has worked for this number of years with one firm, and has used a mask the whole of that time throughout the day. Her eyes are perfectly good, and are right at night. She reads with comfort, and has no complaint to make. She does not know of any who do complain.

8 years. E.F., aged 23, has worked with one firm for this period as a wirer. She has worn either a mask or goggles during that time. She wears a mask all day, and makes no complaint of her eyes, reads and sews with comfort, and notices no difference with or without the mask.

Incidentally it may be mentioned that women or girls are largely engaged in this industry, and in many factories men are only employed for the machines and for the heavy work. It was frequently noticed that females who had left their employment returned again to it after an interval, and not infrequently on repeated occasions. This would hardly have been the case if the wearing of the protectors had been injurious to eyesight. Again, in the large factories where discipline was good, there appeared, from the evidence of the managers and foremen, to be no difficulty in enforcing the wearing of protectors. The knowledge of the danger of the occupation was always present, from the not infrequent occurrence of accidents, owing to the numbers employed. In the small factories, where the employés were very few in number, the danger appeared, as a consequence, less of a reality, and the tendency to carelessness in the use of protectors was greater. One of the largest aërated water firms in the country not only insist on all their employés wearing protectors, but compel all visitors to do the same. Throughout this investigation I have, when inspecting factories, worn either goggles, a mask, or a shield. Dr. Legge, when accompanying me, has done the same. Neither he nor I were conscious of inconvenience to our sight from their employment.

It should be mentioned that in visiting the various factories I was prepared, if necessary, to ascertain, by test types, &c., the actual condition of the vision of the operatives. A large number of the employés were, in fact, so tested, but nothing was elicited as showing any deterioration of vision even among those who had worn protectors for long periods. The smallest print was read when the protectors were actually being worn at the time of examination.

In the few instances in which defects of sight were complained of, the symptoms were entirely subjective, and hardly distinguishable from the subjective symptoms associated with errors of refraction of the eyes. Long sight and short sight are so common that there must be many with these conditions working in aërated water factories, and it is not unnatural for them in their ignorance to attribute symptoms, the real cause of which they do not know, to an obvious incident in their daily work, such as the wearing of a mask. These eye conditions are a frequent cause of headache in all walks of life, and on making enquiry into the past histories of some girls who complained of headache, though they did not all attribute it to wearing protectors, it was ascertained that during school life, or at a period previous to their working in an aërated water factory, they had suffered as much or more.

In the directions given me as to this enquiry, reference was made to complaints which had been formulated at Norwich, as to injury to eyesight occasioned by wearing protectors. It seemed to me well to make enquiries elsewhere, and become conversant with the whole aspects of the question before proceeding to inspect the works at Norwich. This I accordingly did, and previously to visiting that city I had proceeded a considerable way in my investigation. Subsequent enquiries have been altogether confirmatory of the evidence elicited at the earlier places inspected.

At Messrs. Caley's, Norwich, I was received by Mr. E. J. Caley, managing director, in the most courteous manner, and with a manifest wish to aid the enquiry as far as possible. Mr. Caley informed me that protectors had, in a way, been in use for 20

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or 30 years, but when the Special Rules of the Home Office were served the men declined to wear the protectors. Prior to this, masks and goggles were kept, but their use was voluntary. New hands used them and afterwards gave them up. Mr. Caley, moreover, said that there was a general complaint that after wearing a mask for some hours a feeling of nausea, headache, and blurring of sight was experienced, and after prolonged use, say for ten hours, the eyes became bloodshot.

The altogether different experience gained from my enquiries elsewhere was pointed out to Mr. Caley, and he was asked to direct my investigation in such a way that I should, if possible, learn why protectors should occasion such alleged injurious effects at his place, whereas elsewhere they had been in daily use for years without complaint or injury. He promised me every facility in my enquiry. Practically, therefore, the whole of the factory and the machines were inspected, and all the operatives were seen at their work. Men only are employed, and of these 19 were closely interrogated. It at once became apparent that no continued or proper use of the protectors had been made. Instead of the regular daily use one had been accustomed to hear of in other places, the men had discarded them as injurious after a limited trial of half-an-hour, an hour, or an hour-and-a-half, on various days, periods, from the personal experience of Dr. Legge and myself, altogether insufficient to assert that their use was in any degree detrimental. A brief resumé given here of the information elicited from these employés will speak for itself.

Wm. L., aged 45, foreman, has been in the trade with this firm for 33 years. He says the men object to gauntlets as well as masks, asserting that they are irritating. He wore a mask for two years when wiring. After a time he noticed a heated sensation over the eyes and a dimness; he has the same sensations now, although he has not worn a mask for 25 years. He reads small print,* though at an age when many would require the aid of spectacles.

John C., aged 31, has worked 16 years with this firm; five years at bottling. He has worn a mask at various times, the last occasion being three months ago. The first time he gave a good trial to a mask was six months ago, when he wore it for three days. Since then he has worn one for a few hours at a time occasionally. At his first trial he wore the mask in the morning, resting in the afternoon, his explanation of the need for rest being that his eyes ached. He has a small scar on the angle of his jaw, which was occasioned by a blow from a piece of glass when he was bottling 12 months ago. He thinks if he used a mask that his eyesight would suffer, although he has not known of anyone whose eyesight has been injured. Both his eyes are red and congested looking, and if a doctor had seen him after his wearing a mask he might possibly have supposed the mask to be the cause. He reads small print.

W.M., aged 27, has worked 10 years wiring and labelling. He has worn a mask when syphoning. He says he tried 30 or 40 times, but the longest stretch of use was 1½ hours. He reads small print. He gave up because of headache.

W.S., aged 20, wirer and labeller, has worked 11 months. He has worn goggles three or four times for half or three-quarters of an hour, but they made him feel dizzy.

Horace N., aged 24, wirer, has worked nine years. He has worn both goggles and a mask, but only for an hour at a stretch. He has tried three times. When taking them off things have danced before his eyes, and he has had headache.

W.H., aged 26, has worked 11 years as a wirer and labeller. He has never worn a mask, but six months ago tried goggles on four occasions, the longest stretch being four hours. They caused headache. After removing them it was like coming from a cellar into the light. The goggles make things darker. He reads small print.

H.P., aged 24, has worked 1½ years as a wirer. He has tried goggles half a dozen times, but not for more than an hour at a stretch. He complains of headache and bad eyes.

W.M., aged 14, has worked eight months as a labeller. He has worn goggles on two occasions for an hour at a time.

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* The type employed in each instance in which the employés' near vision was tested was that recognised amongst oculists as Snellen 0·5.

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H.H., aged 19, has worked four years as syphon labeller. He has never worn a mask, but has used goggles on four occasions for the space of one hour.

G.T., aged 40, has worked 27 years, 17 years of which he was a bottler. When labelling 20 years ago he received two cuts at different times, one over the eyebrow and the other on the chin. He has worn a mask and goggles, the first time being several years ago. He thinks he once kept one on for half a day at a stretch, but, as a rule, one or two hours is the limit. The last occasion was four months ago, when he wore one for two hours. He reads small print. There is redness of the conjunctiva. He objects to the mask as it makes his eyes ache.

J.S.L., aged 39, has worked two or three years at this place as a bottler. His experience altogether runs over 23 years, and since the age of 18 he has been a bottler. Here he has worn a mask for one hour, but prior to this on two or three days for part of the day. They make his head ache. He reads small print.

W.R., aged 15, has worked two years as labeller, &c. He has worn goggles six times for the space of one hour. His eyes and head ached as a result. He reads small print.

Albert L., aged 17, has worked three years as a labeller. He has worn goggles three times for about one and a half hours. They make his eyes ache.

W.E., aged 17, has worked two years as a labeller. He has worn goggles three times, longest stretch half a day. They cause headache.

C.S., aged 22, labeller and wirer, has worked eight years. He has worn both mask and goggles. Two years ago he wore them more or less for a week.

W.R., aged 22, has worked 18 months now, but previously worked five years. He is a wirer. Eighteen months ago he wore goggles several times for half a day.

A.C., aged 38, has worked 26 years here, with the exception of eight months when employed at other places. He has been a bottler for eighteen years. He does all kinds of bottling and fills syphons, but especially the screw-top bottles. He has always worn a mask when filling these latter bottles, the process, he thinks, being more dangerous. He wears a mask sometimes for several hours at a time; in summer two days a week for the whole day, and one day a fortnight in winter. He reads small print. After wearing a mask he notices a mist before his eyes and has to rub them. It is as if he had been looking at the sun, and is all right again after a few minutes. He finds discomfort in the mask, but not enough to prevent his wearing it if the work is dangerous.

C.B., aged 25, has worked 10 years as a wirer and labeller. He has worn goggles five or six days the day through, and in addition for one hour occasionally.

A.R.B., aged 34, has worked 18 years. For the last three or four years he has been a syphon filler, but has also done bottling. He has worn a mask for the whole day, and sometimes for half a day. He has been wearing one constantly for the last two weeks. He was asked to wear a mask to see the effect. To-day he has been wearing one for four and a half hours; there is no redness of the eyes. He sees no real objection to protectors when there is danger. After a fortnight he really finds no injury. He is all right when he gets home in the evening. He reads small print.

The above records very clearly indicate that there had been no real trial of protectors. The men objected to their use and had practically not worn them. It is interesting in this connection to mention that the foreman stated that the operatives also objected to the gauntlets. A similar objection was made at one other place where protectors also were not viewed with favour. Again, it was understood that a point had been made that the wearing of protectors made the eyes red and inflamed-looking. This was contrary to the experience gained after examining men and women elsewhere, who at the time had been wearing goggles or masks for several hours. But I noticed two men at the Norwich factory whose eyes were so red that had they been wearing a mask at all that day it might, to a careless observer, have been supposed to have been occasioned by its use. These men had not, however, been using protectors.

It is only right to mention that exceptional care is taken at these works to minimise accidents as much as possible. I do not consider, however, that the terms of my reference permit of my entering on the question of how far relaxation of the Special Rules may be

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permissible where means of minimising risk are taken, other than that of wearing masks or goggles. I would only remark that no other means than the wearing of a mask or shield can render a workman in aërated waterworks safe from the possible danger of loss of sight from the accidental bursting of a bottle.

It has been generally recognised that the manufacture of aërated waters is a very dangerous one. Were it not so the present enquiry would have supplied convincing evidence to that effect. A large firm having several different factories, and employing in summer about 4,700 hands, and in winter about 2,500, in spite of the most careful enforcement of the use of masks, gauntlets, &c., informed me that in one year there were nearly 400 accidents reported and unreported. It need hardly be said that the severity of these accidents varied, and some were no doubt trifling in character. At another factory, employing something like 200 men, I personally examined four who had sustained injuries to the eye, eyelid, or eyebrow, during the last two years, in spite of the regular use of protectors.

The number of bottles bursting in a factory in the course of a day is very considerable. New bottles or new syphons are much more liable to break than old, the number being twice as large in the case of the bottles. Manufacturers, therefore, always like to have their old bottles returned. I understand from one firm that the makers supply bottles with a guarantee that not more than 3 per cent. will burst, and that the average of bottles bursting at the second filling will be about 1½ per cent. The breakages depend a good deal on the class of bottles; "Codds" (glass marble stopper bottles), for instance, are more prone to burst than others. Some manufacturers pay a better price, they tell me, to obtain a better bottle. Generally speaking, for old and new bottles about 1 per cent. would seem to be a fair average for bottles breaking.

Syphons burst much less frequently, but the explosion is greater and the danger also more. Two firms have given me the following figures:—One, that 56 out of 82,000 syphons burst; and the other, that 4 out of 18,000 burst.

At a large factory, from figures supplied to me, the number of burst syphons and bottles in a day would work out as follows:—

Out of 18,000 syphons filled per day in winter, 4 will burst.
" 70,000 " " " in hot weather, 16 will burst.
" 400,000 five and ten ounce bottles filled per day in winter, 740 will burst.
" 1,600,000 " " " " in hot weather, 2,962 will burst.

Another firm stated that in one week, during which time the figures were accurately taken for me—

Out of 222,520 bottles filled, 1,608 burst.

The greatest number of bottles burst, of course, in the filling machines, but there is practically no work in, nor any part of, the factory which may be regarded as free from danger. This is well shewn from the following record of the persons suffering from the loss of, or injury to, the eye, who were met with in this enquiry:—

1. In August, 1900, a girl, Nelly S., lost an eye from an injury occasioned by a bottle bursting in the machine whilst she was waiting to carry away the full cases.

2. Cut over the left eyebrow. (No other particulars obtainable.)

3. A girl, who objected to the protectors, though not on account of injury to sight, left a mask off and was blinded.

4. At the same place as the last case a girl, E.W., was bottling, when a bottle burst and a tiny fragment of glass passed through the mask and hit the left eye.

5. N.O. had finished work and was putting her boots on, when a bottle in a crate burst and hit her right eye, injuring it very seriously.

6. T.B., a labourer, was drawing a trolley away after it had been loaded when a bottle burst. He was not wearing any protector. A piece hit the right eye and the eyeball was subsequently removed.

7. At the same place as last case, P. B. was passing a machine when a bottle burst and hit his left eye, which had to be removed.

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8. M.S., at the same place, was taking empty bottles from the stack and putting them in the washing tank. About 10 yards away was a bottling machine, where a bottle burst and a piece of glass struck her right eye, which had afterwards to be removed.

9. A man was struck in the left eye by a portion of a bottle which burst whilst on the trolley.

10. A girl was blinded. (No other particulars obtainable.)

11. A boy was struck over the eye whilst labelling. Another accident had occurred previously which, however, did not involve the sight.

12. Eye lost by bottle bursting when labelling.

13. Arthur A. was drawing a cork with his teeth and did not complete the action before the bottle, which was in his hand, burst and hit his eye. Prior to this he had been tapping the bottle to loosen the cork. This had nothing really to do with his work; he was only having a drink. The eye was removed.

14. At the same place as last case, a youth, H., left his guard on a crate, and on going back for it found that it was entangled with the wire of a bottle. In drawing the guard away the latter fell back and burst, hitting the right eye and causing serious injury.

15. At the same place a man, J., was struck over the left eyebrow. He was sighting, when the bottle burst; he had his goggles on but these did not prevent his being hit. A large scar is left.

16. At the same place C. was putting a bottle in a crate and one burst. He had goggles on, but a piece of bottle knocked them up, and either it or another piece cut the right upper eyelid.

The following points associated with the dangers incidental to the making of aërated waters may be considered:—

1. The machines.—It is a prominent feature of present day bottling machines that they should be so constructed that the "filler" is freed as much as possible from the danger occasioned by bottles bursting during the filling. The machines I have seen at work answer this object with varying degrees of success, but generally speaking it seems as if those now in use could be materially improved in this respect. It may be mentioned that one of the firms using the most modern patterns of machines has removed the door which should enclose the bottle and in its place has fixed the machine round with a wooden arrangement of their own device, which, in their opinion, affords better protection to the filler, as it does also to those working in the vicinity. The cases of injury to eyesight which have been cited indicate a danger from the bursting of bottles in the filling machines to others than those actually engaged in bottling, and this sometimes even at a great distance. This is a matter of some moment and deserves consideration. Messrs. Caley, at Norwich, in particular, have recognised the dangers just referred to, and to obviate the risks they have erected wooden boards on either side of the filling machines. The filler sits on his stool facing the machine, and is in an enclosed space open only at the back. Any portions of bottles flying laterally will be stopped by these boards, which, to prevent any rebound of fragments, are further covered with blanket. The wirers, labellers, &c., work on benches outside this enclosure, and as a bottle is charged the filler passes it through a hole, over which a curtain drops, on to the bench at which the wiring, labelling, &c., is done. Messrs. Caley were at the trouble of having this arrangement photographed for my use in connection with this enquiry, and I wish to express my indebtedness to them for their courtesy and kindness.

2. In the case of cork bottles a further danger is added in the liability of the corks to fly between the bottling and wiring.

3. Sighting.—It is a frequent and perhaps general practice in sighting for two bottles to be held up at the same time. They may be knocked together and burst in this way. At one place, at least, it was, however, the

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A. *Iron plate fixed to Machine to protect Bottler.*

B. *Wood Screen to protect passers by.*

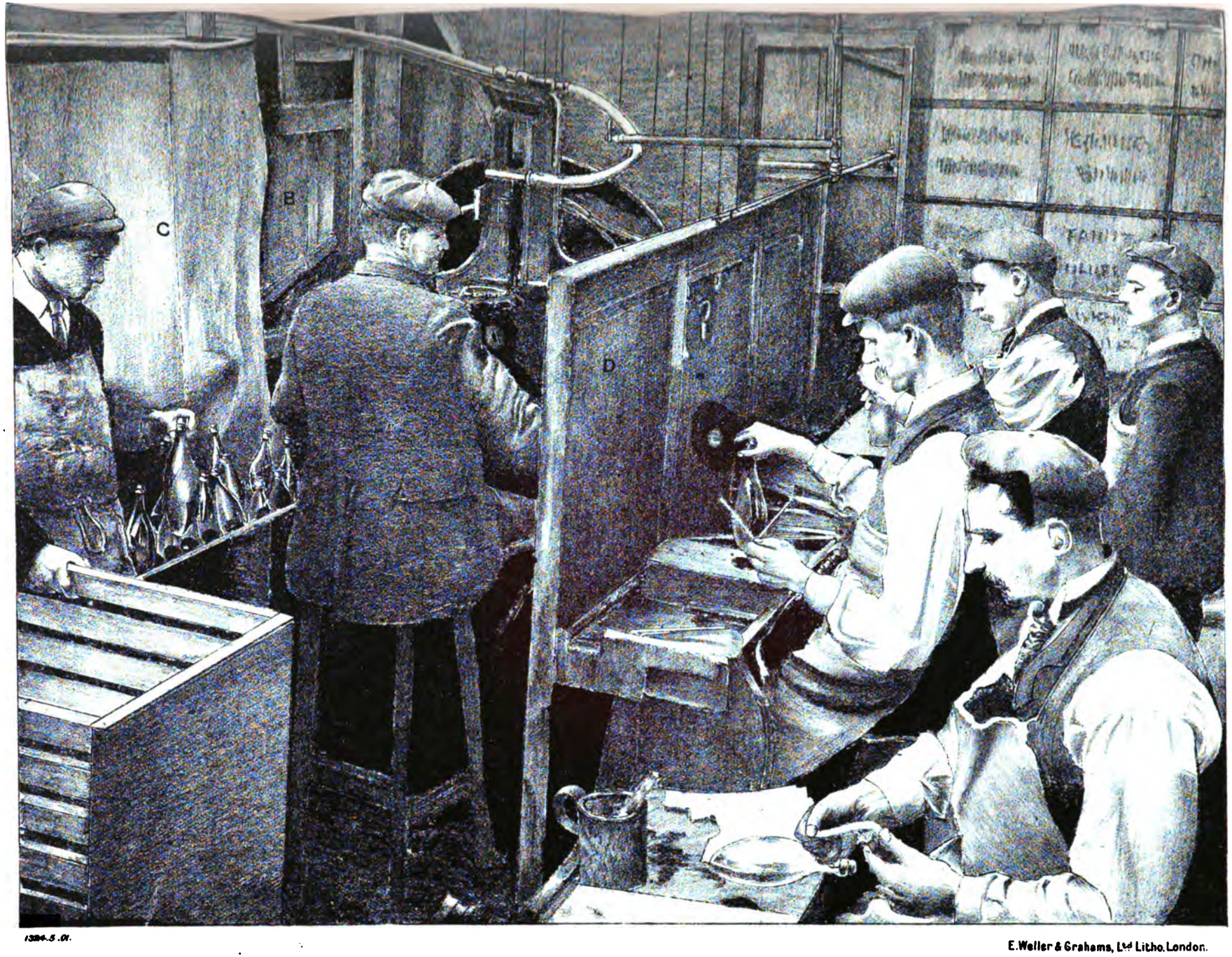
C.C. *Blankets to prevent broken bottles rebounding.*

D. *Wood Screen to protect Wirers.*

E. *Wicket through which bottles are passed to Wirers.*

A Curtain hangs from top to bottom of the Wicket.

Directly the bottle is passed through, the Curtain again falls into position.



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E. Weller & Grahams, Ltd Litho, London.

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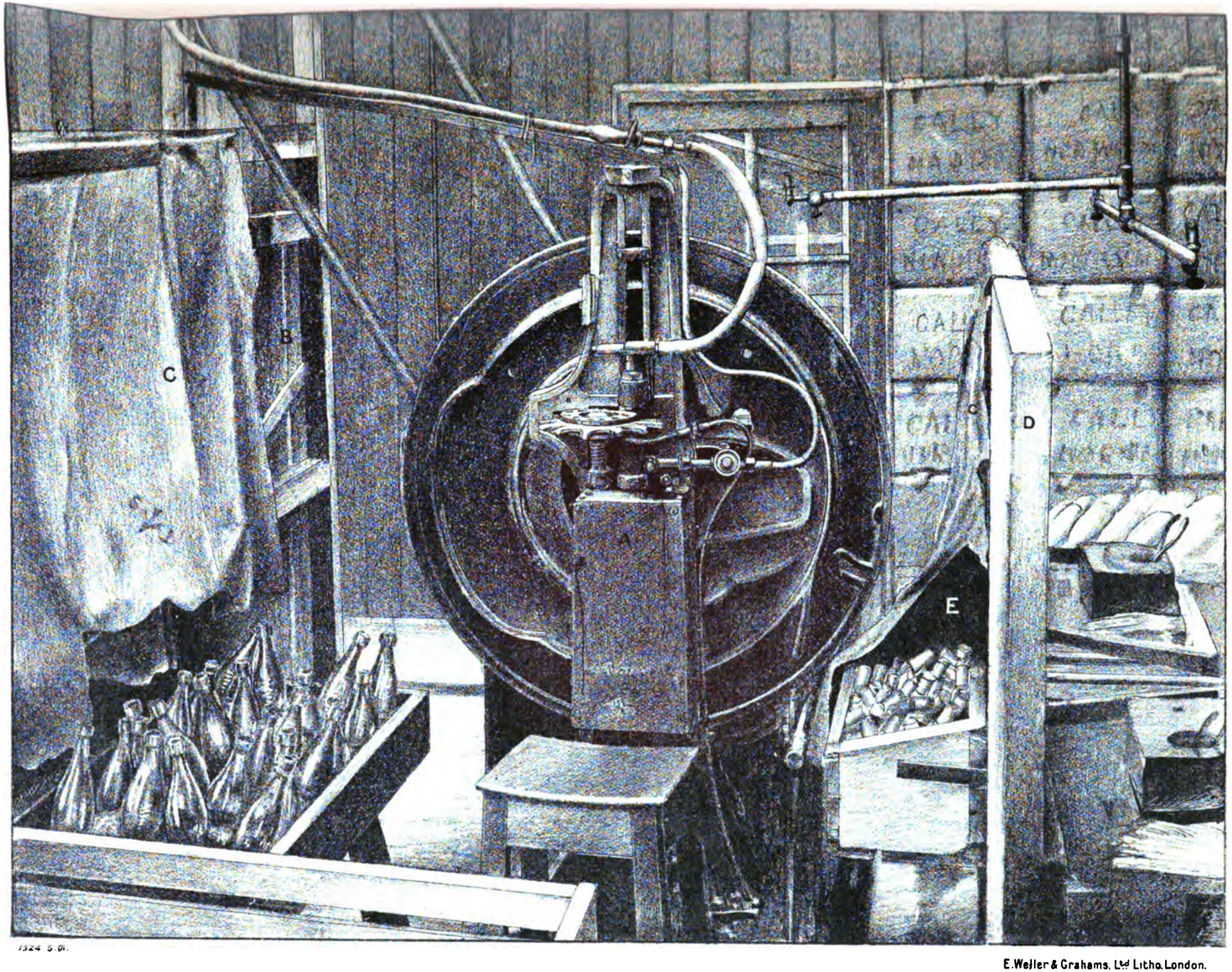

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custom for only one bottle to be sighted at a time, and risk was correspondingly diminished. A further danger is attendant on the knocking of the bottles in withdrawing, or replacing, them in the case.

4. It will be noticed that serious accidents have resulted from the bursting of the bottles in the crates, or when stacked or moved about on the trolleys. A simple means to diminish this risk, adopted by one firm, was to cover the cases or crates with a cloth or sacking.

Protectors.—Two different kinds of protectors are in use, viz., goggles and masks. Goggles were found in use entirely at one factory, but, generally speaking, masks were greatly preferred by the operatives. It was alleged that the goggles made the eyes hot, and, though this and other complaints could, perhaps, be overcome with better constructed guards, it is unnecessary to further discuss the matter, as it may at once be said that goggles or eyeguards do not afford sufficient protection. This is exemplified in three of the last four cases of eye injuries in the list given, which occurred at a factory where goggles, and not masks, were in regular use. With a mask, two of the accidents could not have occurred, and the other is instructive in showing how a fragment of glass may knock away the eyeguards and then injure the eye. Eye goggles further fail, because they leave the face and neck unprotected.

Masks.—The masks I found in use afforded protection to the eye and all parts of the face. They all, however, more or less, admitted of much improvement in construction. Some rested uncomfortably on the chin—but a feature complained of, with reason, was a knob at the end of a metal band reaching from the top of the mask, by which it rested on the back of the head. This contributed in no small degree to the headaches in those cases in which mention was made of them. This, and the needless weight of the mask, are matters of considerable moment, and should be remedied. If the attention of the makers was drawn to the importance of devising a mask, which should be light and fit comfortably, it does not appear that they should find it difficult to meet the requirements. For eyeguards in iron works some time ago I suggested the use of aluminium wire on account of its lightness, its freedom from rust, and the ease with which it may be kept clean. The fatal result attending injury to the neck from the bursting of a syphon, points to the necessity of the mask being either attached to a leather guard protecting the throat, or a continuation downwards of the wire netting, in such a way that it shall effectually guard the neck and its blood-vessels.

The size of the mesh employed in the masks is another matter of importance. If the mesh be too large, small splinters of glass may pass through the apertures and cause injury. Two cases of this kind actually came under my notice. The mesh of the mask was six to the linear inch, and in each of these cases a splinter of glass had passed through the protector and injured an eye. Further than this, the coarser mesh means thicker wire, and the evidence pointed to greater comfort in working with a fine rather than a coarse mesh.

Recently a shield of wire netting, fixed to the shoulders and rising above the head, has been introduced. The head is free to move behind the shield, and it affords good protection. Whether or not it will be found more comfortable in use than the more closely fitting mask experience does not at present allow of a decision, but four firms, who have tried the shields at my request, have expressed to me favourable opinions of them. They are regarded as an improvement, as they relieve the head from the weight and pressure of the old fashioned pattern of mask, and a further good point is that they cannot easily be removed without assistance, as they are tied at the back behind the shoulders. The employés were apt to put the old-fashioned face guards on one side for a few moments whilst at work.

The investigation permits of the following conclusions:—

1. There is an absence of evidence of injury to eyesight from the use of protectors—on the contrary, there are numerous instances of operatives making no complaint after using protectors for 20, 30 or even 40 years.

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2. At a place where complaint had been made, on investigation it was found that no real use had been made of the protectors in the way that was daily the practice in other places which had been visited.

3. The occupation, from the frequency of bottles bursting, is one very prone to accident, the danger not being confined to the fillers. All the workers, or even visitors to the place where bottles are being filled, labelled, &c., or stacked, are liable to injury. Some manufacturers, finding even the best machinery not sufficiently protected, have added devices of their own. Bottles placed in boxes, stacked, or being moved on trolleys, should be covered with cloth or sacking.

4. Eye goggles do not afford sufficient protection. The masks at present in use admit of improvement so as to be worn with more comfort; they should not be of too coarse a mesh, so as to prevent fragments of glass passing through, and in view of the possibility of injury to the vessels of the neck, they should be connected with a leather collar, or be continued downwards to afford protection to the neck and its vessels. They should be as light as possible, and fit without undue pressure. A recently devised shield which resting on the shoulders leaves the face free behind, is being brought into use, and appears to be an improvement in some ways.

B. Particulars of Accidents in Aërated Water Factories reported in 1900.

Reported Accidents due to Explosions in Aërated Water Factories, 1900: Age, Sex, Degree of Injury.

Injury.	Adults (Over 18).		Young Persons (13—18).		Children (11—14).		Total.		
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males and Females.
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)
Causing death	—	1	—	—	—	—	—	1	1
Loss of right hand or arm ..	—	—	—	—	—	—	—	—	—
Loss of left hand or arm	—	—	—	—	—	—	—	—	—
Loss of part of right hand ..	—	—	1	—	—	—	1	—	1
Loss of part of left hand	—	—	—	—	—	—	—	—	—
Loss of any part of leg or foot	—	—	—	—	—	—	—	—	—
Fracture of limbs or bones of trunk.	—	—	—	—	—	—	—	—	—
Fracture of hand or foot	—	—	—	—	—	—	—	—	—
Loss of sight of one or both eyes.	6	2	2	—	—	—	8	2	10
Injuries to head and face.. ..	11	7	11	2	—	—	22	9	31
Burns and scalds	—	1	—	—	—	—	—	1	1
Lacerations, contusions, and other injuries not enumerated above.	50	37	26	3	—	—	75	40	115
TOTAL	67	48	39	5	—	—	106	53	159

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2.—Reported Accidents due to Explosions in Aërated Water Factories, 1900: Occupation and Degree of Injury.

Injury.	Occupation.										Total.
	Manager.	Bottle-washer.	Syphon-Polisher.	Bottler.	Wirer.	Sighter.	Labeller.	Packer.	Carman.	Labourer.	
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)	(11.)	(12.)
Causing death	—	—	1	—	—	—	—	—	—	—	1
Loss of right hand or arm.	—	—	—	—	—	—	—	—	—	—	—
Loss of left hand or arm.	—	—	—	—	—	—	—	—	—	—	—
Loss of part of right hand.	—	—	—	—	—	—	—	—	—	1	1
Loss of part of left hand.	—	—	—	—	—	—	—	—	—	—	—
Loss of any part of leg or foot.	—	—	—	—	—	—	—	—	—	—	—
Fracture of limbs or bones of trunk.	—	—	—	—	—	—	—	—	—	—	—
Fracture of hand or foot.	—	—	—	—	—	—	—	—	—	—	—
Loss of sight of one or both eyes.	1	1	—	1	1	—	2	—	—	4	10
Injuries to head and face.	—	4	1	8	1	5	10	2	—	—	31
Burns and Scalds ..	—	—	—	1	—	—	—	—	—	—	1
Lacerations, contusions, and other injuries not enumerated above.	1	14	—	50	13	5	24	2	2	4	115
TOTAL	2	19	2	60	15	10	36	4	2	9	159

3.—Reported Accidents due to Explosions in Aërated Water Factories, 1900: Age, Sex, and (1) Occupation (2) Hours at Work on day of Accident.

	Adults.		Young Persons.		Children.		Total.		
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males and Females.
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)
(1) Occupation.									
Manager	2	—	—	—	—	—	2	—	2
Bottle washer	4	11	1	3	—	—	5	14	19
Syphon polisher	—	2*	—	—	—	—	—	2*	2*
Bottler	35	16	7	2	—	—	42	18	60
Wirer	6	4	5	—	—	—	11	4	15
Sighter	3	3	4	—	—	—	7	3	10
Labeller	7	10	19	—	—	—	26	10	36
Packer	2	2	—	—	—	—	2	2	4
Carman	2	—	—	—	—	—	2	—	2
Labourer	6	—	3	—	—	—	9	—	9
TOTAL	67	48	39	5	—	—	106	53	159

* 1 Fatal Accident.

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3.—Reported Accidents due to Explosions in Aerated Water Factories, 1900—*continued.*

(1.)	ADULTS.		YOUNG PERSONS.		CHILDREN.		TOTAL.		
	Males. (2.)	Females. (3.)	Males. (4.)	Females. (5.)	Males. (6.)	Females. (7.)	Males. (8.)	Females. (9.)	Males and Females. (10.)
(2) Number of hours between commencement of work and time of accident.									
Less than 1 hour	1	1	5	—	—	—	6	1	7
„ „ 2 hours	3	4	8	1	—	—	11	5	16
„ „ 3 „	11	7	1	—	—	—	12	7	19
„ „ 4 „	6	—	2	2	—	—	8	2	10
„ „ 5 „	3	7	7	—	—	—	10	7	17
„ „ 6 „	8	3	3	—	—	—	11	3	14
„ „ 7 „	4	9*	3	1	—	—	7	10*	17*
„ „ 8 „	2	3	3	—	—	—	5	3	8
„ „ 9 „	7	5	—	—	—	—	7	5	12
„ „ 10 „	7	3	2	—	—	—	9	3	12
„ „ 11 „	4	1	3	—	—	—	7	1	8
„ „ 12 „	4	2	1	—	—	—	5	2	7
More „ 12 „	1	—	—	—	—	—	1	—	1
Not stated	6	3	1	1	—	—	7	4	11
TOTAL	67	48	39	5	—	—	106	53	159

* One fatal accident.

4.—Aerated Water Works.—Accidents Reported during each Month of the Year 1900.

Month. (1.)	Movement of Machinery.		Explosions. (4.)	Falls (other than those included in preceding columns). (5.)	Other Causes. (6.)	Total. (7.)
	Machinery moved by Mechanical Power. (2.)	Machinery not moved by mechanical Power. (3.)				
January	1	1	9	2	3	16
February	1	—	5	—	5	11
March	3	1	4	5	13	26
April	5	—	4	1	4	14
May	—	—	5	7	4	16
June	4	—	12	3	7	26
July	2	—	28*	2	8	40*
August	1	1†	24	3	17	46†
September	1	—	23	2	10	36
October	2	1	21	4	10	38
November	4*	—	10	2	24	40*
December	3	—	14	1	52	70
Total	**27**	**4**	**159**	**32**	**157**	**379**

* 1 Fatal Accident.
† 1 Accident in a Workshop.

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APPENDIX 9.

THE MANUFACTURE OF WALL-PAPERS.

A.—Report of Commander H. P. Smith, H.M. Inspector of Factories.

29th December, 1900.

Sir,

In compliance with instructions contained in your letter of October 12th last, I beg to report as follows :—

The returns from H.M. Inspectors throughout the country show that there are in the United Kingdom 77 works in which the industry of paper-staining, colouring, and enamelling is carried on. I have made careful inquiry, and find that in 36 only of these is conducted the manufacture of wall-papers. There is (as you are aware) a Syndicate trading under the name of " The Wall-paper Manufacturers, Limited," whose registered office is at 125, High Holborn, London. Twenty-three separate manufactories, situated in different parts of the country, trade in and manufacture wall-papers under the name of this Syndicate, the branches being generally distinguished by the name of the firm formerly trading independently. In addition to these factories, there are five extensive works closely associated with the Wall-paper Manufacturers' Associtiation, and controlled (as I understand) by the Executive Committee of that combination.

I have since the receipt of your instructions visited the following 13 works.*

You are aware that, as a member of the Dangerous Trades Committee, I visited several wall-paper manufactories with the other members.

All details relating to the process of manufacture and the dangers of working are fully explained by their report. Various recommendations were made with a view to securing the health of the workers. These recommendations were reported upon by H.M. Inspectors throughout the country after they had visited the various works. The reports of the Inspectors as to the necessity and practicability of carrying out these recommendations in full vary considerably, which, perhaps, is not to be wondered at, seeing that the work is conducted under very different conditions in different works and in different parts of the kingdom.

The inquiry to which you particularly directed my attention related to the manufacture of wall-papers, and the particular object that I had in view was to secure. if possible, assurances from the various manufacturers that they would comply with the recommendations made, or, where they saw reasons for non-compliance, to investigate these reasons, to explain many matters evidently not understood, and, finally, to report to you.

As a preliminary measure I had an interview on October 24th with Mr. Osborn, the Chairman, and Mr. George Kirby, a member of the Executive Committee of the Wall-paper Manufacturers' Association. These gentlemen were good enough to give me a list of all the works within their syndicate. I carefully explained the object of my inquiry. At my request circulars were sent to all the branch establishments, asking for detailed replies to each and all of the suggestions found in the report of the Departmental Committee. On November 8th I had a further interview in London with Mr. Osborn. I went over the various replies received from the different works with him, and, in order that I might satisfy myself as to whether certain objections made were reasonable and called for, I subsequently visited the works before named. On December 14th I again met Mr. Osborn and Mr. Kirby. I explained to them why, in my opinion, it was necessary to retain certain proposals which at first did not to them appear requisite. After a lengthy discussion and explanations on both sides I received an assurance from

* This list is not printed here.

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these gentlemen that if after consideration by the Home Office authorities it is thought that the following regulations will meet all reasonable and necessary requirements, the Executive will submit them to the Association and urge that they should be accepted; furthermore, that the Association will be prepared to give a guarantee that they will be faithfully carried out by their representatives in the different works. I venture to submit these proposals for your consideration. Should they be approved in their entirety, or altered as may seem best, and should it be decided that compliance may be secured without scheduling the trade as a "dangerous trade" under Special Rules, I would suggest that the manufacturers be given to understand that the latter course might eventually have to be taken in the event of failure on the part of those acting under them to fully carry out their wishes and instructions. I, however, desire to say that I have every confidence in the good faith of the gentlemen whom I have seen, that they have met me in a courteous and conciliatory spirit, and that in the whole course of my inquiry every possible facility has been given to me in the various works that I have visited.

It is proposed that in section 35 of the interim report of the Dangerous Trades Committee for the words "processes entailed in satin work" should be substituted "brushing or polishing in satin work."

And following the Committee's recommendations seriatim :—

1. It is agreed that no child should be employed, but proposed that for "young person of either sex" should be substituted "young person of either sex under the age of 16."
2. The Executive Committee will do its utmost to carry out this proposal.
3. Proposed to provide one basin for every five workers in the dusty processes enumerated, and one bath for every 10 or 12, with hot and cold water, towels, soap, and nail-brushes, it however being understood that "wet bronzing" will not be included amongst the dusty processes.
4. Every endeavour will be made to secure proper observance.
5. Accepted.
6. Accepted.
7. Accepted.
8. Accepted.
9. Proposed that for the words "once a month" should be substituted the words "once in three months, and at any time if thought necessary by the Medical or other Factory Inspector."
10. Accepted.
11. Accepted.
12 & 13. To be eliminated; and a new rule substituted in the following words :— "Where dusty processes are carried on which, in the opinion of the Medical or other Factory Inspector are injurious or likely to be injurious to health, a fan to be provided;" and, further, that every possible measure be taken to prevent work in drying-flues or drying-rooms, and that by the use of mechanical or other methods of ventilation a cool and healthy atmosphere be secured for the workers which, as far as possible in winter, shall not exceed 75 degrees, or in summer 90 degrees.

The proposal to substitute the words "brushing or polishing in satin work" for those in the recommendations appear reasonable, it being pointed out that the "grounding" work is a wet process, and that no exceptional precautions are necessary.

Recommendation No. 1.—It is urged by the Manufacturers' Committee that it would be of advantage to the trade if young persons could begin to work at 16 and not at 18, as they would then have an opportunity to learn their work before it is necessary for adult wages to be paid. It is further urged that young persons at the age of 16 are not more likely to suffer in health in these particular occupations than were they two years older. This is, of course, a question for medical experts to decide. Personally, on this point, I am disposed to agree with the Executive Committee.

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Recommendation No. 2.—The manufacturers appear to fully appreciate the necessity for this recommendation. They will do their utmost to carry it out; but they point out that workers will sometimes bring food in their pockets, and eat it at odd times. For this they think they should not be held liable.

Recommendation No. 3.—The necessity for the provision of washing appliances did not at first commend itself to many members in the trade. I am, however, convinced that no concession beyond that now proposed should be allowed. Dealing, firstly, with the dry process of bronzing, I have seen in nearly all the works visited, men and women with clothing, hair, and skin coated with bronze powder. In one instance I found a man whose skin was covered with bronze, but who had not worked at any bronzing process on the day I saw him, evidently showing that the bronze had remained on him since the day before. I made careful inquiries as to the facilities for washing. In some cases I was told that there were public baths, but these were often from one to two or more miles from the works, and it is unreasonable to expect that workers, after a long day's work, will travel this distance to secure cleanliness. Furthermore, it is not fair to the community that workers in this state should use either public swimming or other baths. In very rare instances were there facilities other than such baths for the workers to wash. Dr. H. Albrecht, of Berlin, in his "Handbook of Practical Hygiene," states that bronze dust has a most injurious effect on the respiratory organs, especially in the wall-paper industry in the manufacture of gold papers, where bronze powder is given off. It is further stated that the dust consists (as the microscope shows) of sharp angular particles, and causes chronic inflammation of the nose, and superficial swellings of the nasal mucuous membrane. Analyses of different samples of bronze dust made in the Government Laboratory, London, show that it contains, approximately, 0·12 per cent. of arsenic. Witnesses examined by the Departmental Committee stated that the dust got down their neck, under their clothes, and irritated the skin, that they suffered from headache, constipation, bad taste in the mouth, loss of appetite, drowsiness, lethargy, anæmia, skin eruptions, and respiratory catarrh.

"Flocking," although carried out to a very limited extent, is quite capable of producing injury to health. The process is described in the Report of the Departmental Committee. I have, however, recently submitted for analysis at the Government Laboratory samples of "flock" which I procured from two different factories. One sample of "white flock" contained a trace of lead and a trace of arsenic. A sample of "green flock" from the same firm was free both from lead and arsenic. Another sample of "white flock" from another firm was also free. In the mordant used on the papers before "flocking" lead is found in some works, 20 lbs. of white lead, 20 lbs. of French mordant, 40 lbs. of varnish, and 2 lbs. of boiled oil being used. In flat or plain ground work the mixture contains 10 per cent. of white lead. I have no definite knowledge as to whether lead in this form has been seriously injurious to the workers, but it is generally admitted in the trade that there are occasional cases of lead-poisoning, and I recently saw a worker who, though he himself stated that he had never suffered, had a clearly defined "blue line" on his gums, and I fear that before long severer symptoms may develop.

I have a letter from the Wallpaper Manufacturers, Limited, which runs as follows:—

> We beg to say that at all the branches of this Company instructions have been given to avoid the use of arsenical colours and materials of all kinds, and we believe in all cases the manufacturers of colours used in the manufacture of paper-hangings undertake that such colours and materials shall be arsenic free. As you are aware, metallic arsenic is so widely distributed, and the tests used are so sensitive, that it is almost impossible to give an absolute guarantee against the presence of that metal in more or less minute quantities. We, however, feel sure that there is not used in any of the processes of the Company arsenic in such quantities as to be deleterious either to the workers or the users, and that such arsenic as may be detected by a sensitive chemical test is not in a volatile form, and is in such infinitesimal quantities as to present no practical danger to any one.

They add that they will give instructions to discontinue the use of white lead in flocking size, and, referring to the sample of "flock" before quoted, which contained traces of lead and arsenic, they add that this has caused them much surprise, and they are procuring further samples for analysis. The official analyses of divers colouring materials taken from different works by the Dangerous Trades Committee showed no traces of arsenic.

In mica dusting and dusting-off, after all precautions have been taken, much fine dust permeates the atmosphere, and finds its way to the workers' hair; not simply to the hands and face, but also under the clothing to other portions of the body.

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With these explanations, the necessity for the washing appliances seems to be established, and this has been recognised by the representatives of the manufacturers.

Recommendation No. 4.—It is promised that every effort will be made to secure compliance.

Recommendation No. 5.—Is not only accepted, but it was proposed (and I believe will be carried out) that time be allowed to the workers to have a bath during working-hours.

Recommendation No. 6.—I need make no comments.

Recommendation No. 7.—Is accepted, and I may mention that in some works recently visited I found excellent head-coverings and overalls in use. In one place I found a girl's hair and neck completely covered by a suitable head-covering, but working at a short distance from her was another girl without any protection, whose hair, skin, and scalp were bronzed almost as much as the material on which she was working. A rigid observance of this rule is necessary.

Recommendation No. 8.—This is accepted, and it may be well to remark that although various explanations have been given as to why milk should act as an antidote (explanations which have not been satisfactory from a scientific point of view) yet in practice it has been found that workers who are so supplied when working in dusty bronzing processes enjoy much better health than those who are not, and so readily has this been accepted that throughout the country manufacturers are found who voluntarily provide milk.

Recommendation No. 9.—It was considered by the manufacturers that although certain processes carried on by them may under certain conditions and unless proper precautions are observed, be considered unhealthy processes, nevertheless the risks are not such as to call for rigid rules such as are necessary in trades that are recognised as "deadly" trades. They think that a medical examination once in three months would meet all that is required, but they are quite prepared to have a further medical examination at any time when it is thought requisite by the medical Inspector or by any other of H.M. Inspectors. On this point a medical opinion would be of more value than any that can be offered by me, but I am certainly disposed to think that this moderate concession might be granted.

Recommendations Nos. 10 *and* 11.—Are readily accepted.

Recommendations Nos. 12 *and* 13.—The proposed elimination of Rules 12 and 13, and the insertion of another Rule in their place, is perhaps the most important of all the considerations before us. The recommendation made by the Dangerous Trades' Committee that drying-rooms or stoves should be separated from machine or other work-rooms is of unquestionable value under certain conditions, but after careful inquiry I am satisfied that it would be impracticable to carry it out universally, and that to do so would produce results diametrically opposed to what is intended. In different works there are different methods. In some the drying-stoves are at an exceedingly high temperature, whilst in others they are ventilated in such a way that the stoves are cooler than the machine-rooms. This perhaps will be better understood by quoting the temperatures taken at different works on different days and in different parts of the country.

i. Temperature of No. 1 machine-room, 68 deg.; drying-room, 96; downstairs bronzing and drying-room, 80 deg.; machine-shop separated from drying-room. Outside temperature, 62 deg. Time of visit, 2 p.m.

ii. Temperature near sanitary printing machines, 78 deg.; a large window open at the time. Centre of drying-room adjoining this room, 85 deg. Time of visit, 4.15 p.m.

iii. Temperature of reeling-up machine-room, 80 deg.; drying-room about the same. Time of visit, 5.30 p.m.

iv. Machine-shop, reeling-up end, 88 deg.; centre of same shop or drying-rooms 90 deg. Grounding shop, reeling-up end, 98 deg.; centre of this shop (or drying department), 100 deg.

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v. Temperature near winding arms in lower room, 80 deg.; hottest part of adjoining drying-room, 90 deg.; upper grounding-room temperature in middle of drying-room, 95 deg. No work done in this room. Hour, 5 p.m. Outside temperature, 52 deg.

vi. Work just ceased at time of visit, so was unable to obtain temperatures, but machines-rooms (as far as could be judged without an actual test) appeared to be of much the same temperature as the drying-rooms.

vii. Temperature in work-rooms not excessive. The drying departments quite as cool as the machine-rooms.

viii. Ground drying-room, temperature at reeling-up end where women work, 72 deg. A mechanical fan pumps air into this end of the room through a canvas distributing pipe. Temperature in the middle of the drying-room, 92 deg.; near the machines, 85, with five windows open; machines partly separated from the drying-room. Second, or lower printing-room, temperature at reeling-up end, 88 deg.; two windows open. Temperature in middle of drying-room, 86 deg. Temperature at machine end, with closed windows, 68 deg., but there was a strong current passing through this portion of the room, coming from a large warehouse. Time of visit, 4 p.m.

ix. Temperature in work-rooms, 76 deg. Drying-room very much cooler than work-rooms.

x. Temperature in work-rooms, 74 deg. No hotter in drying departments. Ventilation throughout on scientific principles. Time of visit, 4.15 p.m.

xi. Temperature in surface printing-room, near windows, 81 deg. No ventilation but by windows. Machines not separated from drying-room. Young girls work at "grounding" machines, close to where the drying process begins. Here the temperature is 81 deg. In the middle of the drying-room it is only 82 deg. At the other end of the drying-room are printing and rolling-up machines attended by women. Temperature, 77 deg. No mechanical ventilation; windows all closed. There is a printing-room known as a "Sanitary printing-room"; temperature, 60 deg. only, but atmosphere much contaminated by naptha fumes. The paper printed in this room goes through metal tunnels to a drying-room in another building.

xii. Embossed material for placing on walls, &c., dryed in a specially constructed drying chamber, at a temperature of 150 deg. No work of any kind done in this room, nor is their any connection with other portions of the works. The temperature in the works and machine-rooms, 78 deg.

xiii. Machine printing-room high and well ventilated at one end, cold air being forced in by a fan or an aperture on one side and ejected on the other side. Temperature at 9.30 a.m., 72 deg; temperature in the centre of the drying-room, 99 deg. The air is constantly being changed by admission and ejection brought about by fans. In some portions the air is heated by passing over hot pipes, but where persons work it is admitted in the cool state. Temperature in centre of drying-room, 99 deg., the only work done being what is known as "rod box work,"—that is, collecting the rods which have carried the paper into the drying-room. Here and elsewhere much of this might be obviated by mechanical appliances.

xiv. Temperature in the machine-room, one end, 79 deg. No mechanical ventilation, but openings in the roof and side walls. Temperature in the middle of the flue or drying-stove, 110 deg. At the far end of this room, known as the "Sanitary Paper Machine End," the temperature was 75 deg. The second storey sanitary machine room, temperature at the machine end, 92 deg. in one part, 88 deg. in another, with the windows open. No mechanical ventilation. Temperature in the flue or drying-room adjoining this shop, 114 deg.

In cases where there is separation of the work-rooms from the drying-stoves it has been noted.

It will be seen that in some instances the drying-rooms are cooler than the machine-rooms, in others that by suitable methods of ventilation the places where work goes on

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are cool and healthy, and no necessity exists for a partition. In others, again, it is obvious that something must immediately be done, but it is not apparent that partition from the drying-room will best meet what is intended. During my visits I found unnecessary work going on in drying-rooms. In one place young persons were employed at reeling-up machines in the centre of the drying-room at a temperature of 85 deg. This I consider quite unnecessary. In many works the bronzing-machines are placed in the middle of drying-rooms, it being stated that, unless so placed, the mordant is not of a suitable consistency for the reception of the bronze, but I am confident that this difficulty can be overcome by an effort on the part of the manufacturers. In some works I saw the process being actually done, and done in a satisfactory manner, at a temperature of 72 deg. Again, I would point out that, by the use of mechanical appliances, much of the work known as "rod box work," now done in stoves or drying-rooms, might be done away with.

The dusty processes described as "bronzing," "dusting-off," "flocking," "mica-dusting," and certain processes of satin-work, are done under different conditions in different works. In some instances bronze is put on by machines and dusted off by machines, in others it is put on by hand and dusted off by hand. Again, dusting-off is sometimes done during the reeling process by machinery, the paper rubbing against a cloth on the machine. In some of these processes the application of fans is practicable and desirable, in others this is not the case. The same remarks apply generally. The necessity for mechanical ventilation will require careful consideration in each and all of the works.

In conclusion, I may, perhaps, be permitted to say that this report is merely one of a supplementary nature, the whole question having been considered by the members of the Departmental Committee on Dangerous Trades. With the "recommendations" made by that Committee, I desire entirely to associate myself, and if I have in some few instances presumed to offer certain modifications it is in the belief that, although a better general code of suggestions could not well have been framed, they were, nevertheless, made with the full knowledge that, under section 8 of the Act of 1891, "it is open to any occupier to make objection to any particular Rule," and that in practice it has always been the custom to consider very carefully any objection of a sound and reasonable nature made in good faith. The limited changes suggested carry out, in substance, what was intended by the members of the Committee on which it was my privilege to serve.

I have, &c.,

H. P. SMITH,

H.M. Inspector of Factories

Arthur Whitelegge, Esq., M.D.,

H.M. Chief Inspector of Factories,

Home Office, London, S.W.

B. Correspondence.

The Wall-Paper Manufacturers, Limited,

125, High Holborn, London, W.C.,

January 18th, 1901.

DEAR SIR,

WITH further reference to the interview which you had with two of the Directors of this Company, and to your information that traces of arsenic and appreciable quantities of lead had been found in certain flock papers, I am now instructed to say that careful enquiry amongst the few branches of the Company manufacturing flock goods indicate that it is not feasible at present to discontinue the use of the mordant which has been used for the purpose of making the flock adhere to the paper apparently for over half-a-century.

This mordant is not made by the manufacturers of flock papers, but is supplied by colour or varnish manufacturers in the same way that they supply mixed paints to painters, and I venture to point out that the quantity of white lead contained in this mordant, and the extent to which it is used by any workman, is very much less than the quantity of white lead which would be used by an ordinary house painter in his daily work.

Regarding the man you saw at the Belgrave Mills, whose name is Henry McCann, I may say that the Committee have had him and all the workpeople employed in any way connected with this process at Darwen carefully examined by Dr. Moir, whose certificate I enclose, and I am instructed to say that the Board would not object to an independent medical examination being made periodically, say every three months, for your further satisfaction.

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I append replies which I have received to enquiries made from the two firms outside this Company, who are considerable manufacturers of flock papers, and upon the whole facts I think it may reasonably be assumed—

1. That arsenic, so far as found in the flock paper analysed by you, is an accident of no especial importance, there being traces only of that mineral which may probably have been in the white lead, which I understand is not infrequently found in combination with lead, and I understand further that such metallic arsenic, not being volatile, does not present any danger to the workpeople from absorption in the course of their work.

2. As regards the use of lead all the evidence points to the fact that in the limited quantities used no appreciable ill-effect has ever been in the past, or is likely to be found in the future, upon the health of the workpeople using it for the purposes of flocking papers.

3. The white lead being fixed by the oil and varnish as in oil paint, nothing in these papers is likely to affect the health of the inhabitants of a room papered with such papers any more than they would be likely to suffer from the fact that white lead is the base of the paints used upon the wood work in the room.

Yours truly,

H. SIMPSON,
Secretary.

Commander Hamilton Smith, R.N.,
Sheffield.

P.S.—Since writing the foregoing I have received from one of the branches specimens of flock paper which they have produced with a mordant not containing lead, and although these specimens do not show the work to be perfect still they are so promising that I have little doubt, within a very short time, that the use of the lead mordant may be abandoned.—H.S.

[COPY.]

Whitelands Works,
Chelsea,
January 9th, 1901.

DEAR SIR,

WE are obliged for yours of the 7th *re* Factory Inspector's suggestion to include flock-paper making among "Dangerous Trades."

One of the local Inspectors called here about a year ago, when the question was pretty fully discussed.

It was then stated to him that *no efficient substitute for white lead had been found*, and it was admitted that traces of arsenic might be found in this as in nearly if not quite all white lead, and that, therefore, a paper could not contain so much as any painted wall. It was also pointed out that the white lead was fixed by the oil and varnish as in oil paint, and, further, that the ingredients were not mixed here as in the painter's shop, but was supplied as "mordant" already compounded by the maker.

As touching the "danger" of the occupation the printer, Webber, was closely examined by the Inspector, and he testified that having made large quantities himself he had experienced no ill effects, and that his father, who was with this firm about 50 years, had been employed during this period almost exclusively making flock papers, and had never been ill. This appeared to satisfy the Inspector as to the salubrity of the work. To his suggestion that we might provide a hot bath the workmen objected, that as they are on piecework this would cost them about 1*s.* 6*d.* each, and they would, therefore, not take them here.

The asserted existence of arsenic in the flock itself is new to us, although it is just conceivable there may be a trace in those dyed with aniline colour that may have been reduced by arsenic.

It is doubtful whether the makers of flocks, who as you know are French or German, would give an absolute guarantee of the kind suggested, although as we believe the use of arsenical pigments is prohibited in Germany.

We cannot but think that if you place before the Inspector your own, with our experience as well as others in the trade, he will see that that there is no need for interference in our factories with regard to the matter in question.

Yours truly,

SCOTT, CUTHBERTSON, & CO.

H. Simpson, Esq.,
Secretary to the
Wall-paper Manufacturers, Ltd.,
High Holborn.

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64, Essex Road, Islington, London, N.,
January 8th, 1901.

DEAR SIR,

IN reply to yours of January 7th, respecting the report of the Chief Inspector under the Parliamentary Committee upon Dangerous Trades, that flock-papers contain arsenic and are contaminated with lead. We obtain and hold at the present time a guarantee from the flock-maker that the flock supplied to us is free from arsenic, and we do not ourselves see that it would be possible for the white flock to contain arsenic.

With regard to lead. White lead *ground in oil* is employed, and we do not think it would be possible to discontinue its use in the mordant used for making the flock to adhere. It would be no more injurious in its use than oil paint, and it hardens exactly in the same way as oil paint. If paint is analysed the lead can be found, but no one imagines that an oil-painted wall is injurious.

We do not believe that any case has been proved of a workman suffering in health on account of manufacturing flock-papers.

Yours faithfully,
JEFFREYS & CO.

H. Simpson, Esq.,
Secretary to the
Wall-paper Manufacturers, Ltd.

Belgrave Square, Darwen,
December 22nd, 1900.

Re 1. Thomas Mangham, aged 55.
2. William Fisher, aged 52.
3. Henry McCann, aged 45.
4. William Hough, aged 14.

I have examined the above-named employees of Belgrave Works, Darwen. They are all in a healthy condition and shew no signs of lead poisoning.

WILLIAM MOIR, M.D.

Sheffield,
19th January, 1901.

DEAR SIR,

I AM much obliged for your letter of the 18th inst. containing copies of letters addressed to you by Messrs. Scott, Cuthbertson & Co., Messrs. Jeffrey & Co., and a firm unnamed, directing from Belgrave Square, Darwen—presumably C. and J. G. Potter Branch.

My report is in the hands of the Chief Inspector, so I will forward your letter, with the enclosures, for consideration. Some remarks made by me to your Executive were in a large measure suggested by what was said to me when I visited extensive works in Glasgow. Here, the assistant general manager said that formerly there were many cases of plumbism due to the use of lead in the mordant, but that now no lead was used. The latter remark, however, has since been corrected by the firm, who say that lead is used. It was not intended to attach undue importance to the fact, but rather to justify the suggestion that proper washing appliances should be provided, and that men using this mordant should (in common with house and other painters brought in contact with lead) be careful in regard to washing and cleanliness.

Your postscript holds out hope that "flock" papers may be produced without lead, and that is very encouraging.

The traces of arsenic discovered by the public analyst in certain samples of "flock" were mentioned as a matter that would interest your Executive. The process of flocking is of necessity a dusty one. It is almost impossible to prevent the inhalation of a certain amount of dust. Under these circumstances, without making any definite statement as to how far injury might be caused to the workers, it appeared to me that efforts should certainly be made to obtain "flock" in which no arsenic could be found.

Yours faithfully,
(Signed) H. P. SMITH,
H.M. Inspector of Factories.

H. Simpson, Esq.,
Secretary to the
Wall-paper Manufacturers Association Ltd.,
125, High Holborn, London, W.C.

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The Wall-paper Manufacturers, Limited,
125, High Holborn, London, W.C.,
21st January, 1901.

DEAR SIR,

I AM in receipt of your favour of the 19th inst. for which I am obliged.

The copy of the letter dated Belgrave Mills is, as you surmise, from the C. and J. G. Potter Branch.

I will lay your communication before the Committee, and advise you further when the results of working with mordant free from lead have been ascertained.

I now understand that the manufacturers of the flock have undertaken to supply at least two of the branches with an article guaranteed free from arsenic. This, of course, will render it easy to the other branches, who can obtain their supplies from the same source, and I hope shortly to be able to report to you satisfactorily upon both points.

Yours truly,
H. SIMPSON,
Secretary.

Captain Hamilton P. Smith,
Sheffield.

Home Office,
13th February, 1901.

SIR,

IN an Interim Report published in 1896 the Departmental Committee appointed by the Secretary of State to inquire into certain dangerous trades, recommended the adoption of precautionary measures as being necessary for the protection of workpeople engaged in the manufacture of wall paper.

These are summarised at p. 12 of the enclosed report.

In view of the further reports received by the Department, Commander Smith, one of H.M. Inspectors of Factories, and Secretary of the late Committee, was instructed to visit factories engaged in this manufacture, to confer with the occupiers and to report upon the conditions now existing, the present observance of the measures advised by the Committee, and the further steps necessary for the safety of the persons employed. His report has now been received, and in it Commander Smith states that before and after visiting the works in question he had the advantage of meeting the Chairman and other members of the Wallpaper Manufacturers' Association, and that they have undertaken to propose to the General Committee of the Association that subject to certain modifications the safeguards indicated by the Departmental Committee shall be fully observed in each factory over which they have authority, and that an assurance to that effect shall be given to the Secretary of State.

I beg to enclose a marked copy of the Committee's Report and also a copy of the regulations recommended by them modified in the sense which I understand to have been agreed upon between the representatives of the Association and Commander Smith. May I ask you to be good enough to submit the draft regulations to your Association and inform me whether the Association accept them in their present form and are prepared to give to the Secretary of State the proposed assurance? In that event I shall be glad to have a list of the several factories in question.

I am, &c.,
B. A. WHITELEGGE,
Chief Inspector of Factories.

H. Simpson, Esq.,
Secretary to the Wall Paper Manufacturers, Ltd.,
125, High Holborn, London, W.C.

The Wall-Paper Manufacturers, Limited,
125, High Holborn, London, W.C.,
February 22nd, 1901.

DEAR SIR,

WITH reference to your favour of the 13th inst., enclosing a copy of the regulations recommended by your Committee modified in the sense of the understanding reached between the representatives of this Company and Commander Smith, I am instructed to say that the Company is prepared to accept the regulations therein detailed as concerning those of its factories where dusty processes are in operation.

They desire, however, still to express to you, as they expressed to Commander Smith, an entire conviction that the provision of baths proposed will be useless.

The adult workmen will certainly resent the provision of such accommodation with the implied pressure upon them to make use of the same, whilst in respect of young persons and females the difficulty of supervision needs no comment.

I venture to express the opinion that free tickets for the nearest public baths would be likely to be more generally beneficial.

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It would, in a factory, be difficult to provide the baths so private that the few workpeople affected could use them without coming under the observation of their fellow workpeople, and any one acquainted with factory workers knows that the persons compelled to use the baths would be made miserable by the gibes of their fellows.

It would be difficult to use these baths during working hours, and it is certain that the workpeople will not, except under the strongest coercion, remain after hours for the purpose of using such convenience.

After this expression of a strong conviction the Company is, however, willing to make the provision if decided upon, and I have the honour to hand you herewith a copy of the report from the various factories of this Company in accordance with your request.

I am, &c.,
H. SIMPSON,
Secretary.

B. A. Whitelegge, Esq.,
Chief Inspector of Factories,
Factory Department, Home Office,
London, S.W.

Home Office,
March 25th, 1901.

SIR,

YOUR letter of the 22nd ult. has been laid before the Secretary of State. who directs me to express his appreciation of the readiness of the Association to adopt the measures of precaution necessary for the safety of the persons in their employment.

In the light of the experience gained in other branches of manufacture in which like dangers to health occur, the Secretary of State is satisfied that the provision of baths in the works is an important additional safeguard; and that facilities for the use of public baths would not be adequate. He is glad to note that the Association are willing to comply with the Committee's recommendation in this respect.

In your letter you say that the Association are prepared to accept the regulatons for those of its factories in which dusty processes are carried on, and this covers the ground as far as the first nine regulations are concerned. The tenth and last, however, has reference to temperature in all workrooms, and I hope I am right in assuming that it is understood by the Association as applying to all their factories.

. . . . . .

It will, perhaps, be most convenient that the regulations now agreed npon should be printed by this department. This shall be done in a form suitable for exhibition in the factories, and copies shall be sent to you as soon as possible.

I am, &c.,
EDWARD GOULD.
For Dr. Whitelegge.

H. Simpson, Esq.,
Secretary to the Wall-Paper Manufacturers, Limited,
High Holborn, W.C.

The Wall-Paper Manufacturers, Limited,
125, High Holborn, London, W.C.,
March 29th, 1901.

DEAR SIR,

IN reply to your favour of the 25th inst., I am instructed to say that if you will be good enough to correct the third paragraph of your letter by the insertion of the word "parts," making it read—"That the Company are prepared to accept the regulations, for those parts of its factories in which dusty processes are carried on, &c.," you may take it that we are in accord, though for the sake of accuracy they would wish you to insert in your printed copy of the regulations clause 8, paragraph A, a similar distinction, that is to say, that the Certificated Surgeon is "to examine at the factory all workers in the *parts* of the factory in which any of the dusty processes are carried on."

With regard to the tenth and last clause in your regulations, the Company is willing to accept this with the understanding that the words "every possible measure" shall be taken to mean that they will use every practicable measure, that is to say, that they will act loyally along with His Majesty's Inspectors to comply with those conditions by not allowing any work to be carried on in the drying flues which can reasonably be avoided, and generally trying to render the conditions as favourable as practicable in the circumstances of each factory.

. . . . . .

Yours truly,
H. SIMPSON,
Secretary

Dr. Whitelegge,
Factory Department,
Home Office, S.W.

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C. Regulations.

The following Regulations are approved by the Home Office and are applicable to every part of the factory in which any of the following dusty processes is carried on :—

Dry bronzing, dusting off.
Flocking.
Mica dusting, dusting off.
Brushing or polishing in satin work.

1. No child or young person under 16 of either sex shall be employed. *Age.*

2. The employers will take measures to secure as far as lies in their power that no food or drink is brought into the work-room, or consumed there. *Food.*

3. The employers will provide lavatories and baths for the use of the workers, with hot and cold water laid on to each basin, soap, nail-brushes, towels. One basin will be provided for every five persons employed in the processes named, and one bath for every 10 such persons. *Washing.*

4. The employers will take measures to secure, as far as lies in their power, that every worker—

(*a*) shall wash hands and face before meals and before leaving the works ;

(*b*) shall take a bath once a week.

5. The employers will supply suitable washable respirators, to be changed not less than thrice a week. *Respirators.*

6. The employers will supply, and cause to be washed at least once a week, suitable overalls and head-coverings, of such a material and colour as to show the dust. *Overalls, head-coverings.*

7. The employers will supply to each person engaged in bronzing or dusting off bronze, half-a-pint of milk at 11 a.m. daily and half-a-pint at 4.30 p.m. daily. *Milk.*

8. The employers will keep a register of all persons employed and will make arrangements with the Certifying Surgeon— *Register.*

(*a*) To examine at the factory every three months, and at any other time if so directed by one of H.M. Inspectors, all persons working in the parts of the factory in which any of the dusty processes are carried on. *Medical Examination.*

(*b*) To enter in the register the dates and results of the examinations and particulars of any requirement made by him.

(*c*) To forward to H.M. Inspector for the District notice of any case of illness attributable to the processes to which these regulations refer.

(*d*) To suspend from employment in the named processes any person whose health is found to be endangered thereby.

9. The employers will provide a fan (with suitable suction pipes or other appliances for carrying off dust) in any dusty process which in the opinion of H.M. Inspectors is injurious or likely to be injurious to health. *Fans.*

10. The employers will take every possible measure to prevent work in drying flues or drying rooms, and to secure, by the use of mechanical or other methods of ventilation, a cool and healthy atmosphere in all work-rooms, especially those places known as machine-rooms in which patterns are printed, or ground colours laid on papers, by the use of machinery worked by mechanical power. *Temperature.*

D.—Further Reports.

In the current year *Commander Smith* has extended his inquiry to other branches of industry, closely allied to the above ; and the following are extracts from his further reports, dated May, 1901, dealing with the manufacture of certain special mural decorations, and the colouring and enamelling of paper :—

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Dealing with mural decorations it will be noticed that there are certain firms who produce wares very similar in appearance but manufactured on entirely different principles, the raw material differing in almost all the works. . . . . The highly interesting processes of manufacture are briefly described in the papers forming the appendix to this and other reports, but it would be undesirable to enter into detail relating to these processes in any report of a public nature. Suffice it to say that after a most careful enquiry I have not found that any process carried on calls for special legislation. On the other hand, I have noticed that exceptinal care has been taken to secure health and comfort for the workers in this particular branch of the industry before us.

It will be remembered that the returns forwarded by H.M. Inspectors of Factories show that there are in the United Kingdom approximately 78 works in which are carried on the industries of either paper staining, colouring, or enamelling. Of these (1) 30 firms or branches of firms manufacture wallpapers; (2) five produce specialities for mural decorations not strictly wallpapers; (3) in the remaining 43 works *paper colouring*, in one form or another, is carried on.

(1) After careful inquiry at the works, and after interviews with the Executive of the Wallpaper Manufacturers' Syndicate, it is hoped that satisfactory measures proposed by the Home Office and accepted generally by the manufacturers, will secure for the workers the protection suggested in the Report of the Dangerous Trades Committee.

(2) I have, after full consideration and investigation, submitted that no special legislation is necessary for the five firms manufacturing the special goods referred to above.

(3) We have, therefore, now to deal with the remaining works, which I will describe as "Paper colouring and enamelling works."

Before entering into other detail it seems necessary to point out that by the definition in the 4th schedule, part 1, of the Factory and Workshops Act, 1878, paper staining works are described as places in "which persons work for hire in printing a pattern in colours upon sheets of paper either by blocks applied by hand, or by rollers worked by steam, water, or other mechanical power." This definition confines the operation of paper-staining to the manufacture of wallpapers; but this does not appear to be the meaning put upon the words by gentlemen engaged in the trade. In some works visited I was told that paper-staining is understood to mean, colouring by using certain aniline colours which penetrate and colour the paper on both sides; "colouring," on the other hand, meaning, colouring on one side only, by the use of certain colours. The meaning of the word "enamelling," so far as relates to putting a finish upon paper, is differently understood in different works. Some gentlemen informed me that "enamelling" is the work done by brushes fixed on machines for polishing and equally distributing colours laid on by rollers worked by steam. Others understood the term to mean, the laying on of certain enamel, paints, colours, or mixtures, which when dry have a bright, polished appearance. By some it is held to be the passing of coloured papers through certain friction calendar machines, consisting of chilled iron and compressed paper rollers, the iron roller travelling twice as fast as the compressed paper one. The operation known as "satin polishing"—that is, polishing by hand (or by revolving brushes moved by power) and the use of French chalk—is very generally described as an "enamelling" process. Some consider that "enamelling" includes the pressing of otherwise finished papers, in zinc plates passed through heavy rolls. The remarks and suggestions which follow will apply to the occupation which I have described as "paper colouring and enamelling," as entirely distinct from "paper staining," a term applied to the manufacture of wallpapers.

In accordance with suggestions offered by me, and meeting with your approval, I have visited nine typical works. Notes taken in detail at the time of my visits are given in appendix form. These may be useful for reference, but appear unnecessary in the body of a report.

In general terms the goods manufactured by these firms are used for supply to lithographers and letter-press printers, for covers of magazines, for show-cards and advertising cards, for wrapping up soaps, teas, tobaccos, &c., and for covering books.

The paper colouring industry is carried on under widely different conditions. There are very extensive works in which mechanical power is largely used,—others where the work is done by hand only. Where machinery is used, the "ground" or surface colours are applied by rollers worked by steam, the sheets passing through stoves or drying-rooms, and being rolled up when dry by roller machines, but no pattern is printed, consequently the operation cannot be described as "paper staining in the sense of Shedule IV. (1)." Machines are also found (and are in some instances superseding hand-labour) for colouring cardboard squares or short sheets, these squares and sheets being dried in drying-rooms adjoining the machine. The method of colouring the long sheets above described is, to all outward appearance, the same as paper-staining in wallpaper works, but the temperature of the machine rooms and that of the drying rooms, is considerably lower than is experienced where wallpapers are manufactured. Paper colouring by hand is carried on in places where machinery is used, but as a distinct branch. It is also found in works where there is no machinery. It is generally done by women, who work at a bench. The colours are warm, being so kept by being placed in metal vessels immersed in hot water. The application of the colours is by "mop-headed" hair brushes. The drying-rooms form part of the room in which this work is done, but speaking generally, these rooms are fairly well ventilated, and kept at a moderate temperature. At one place where chromo colours were being used, I noticed that the hands of the worker (an elderly woman) were literally caked with a dry yellow paste. On being questioned by me, she said that she is now aged 71 and has worked as a paper colourer for 38 years for the present firm,

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and previously for about 12 years for another firm. She added that she had enjoyed good health during the whole of her life. I also saw her daughter, a strong healthy-looking young woman, who was employed in the same works. Seeing that chromo colours are generally considered to be injurious, I took samples of those in use, which have been submitted for analysis, but the report is not yet to hand. I take it, however, that the immunity from any symptom of plumbism is due to the fact that the colour contains chromate of lead or lead sulphate insoluble in water or dilute acid. At other works I questioned another woman, of middle age, whose hands were much in the same condition as just described. She stated that she had done this work for about 17 years; that seven years ago she was unwell, and her doctor (without expressing any definite opinion) thought some of the symptoms arose from lead, but the doctor has been dead for some years, and I could get no further information. As, however, this woman has not suffered since, it is extremely doubtful whether lead in any way caused her illness. At many works visited it was admitted that, years ago, when the use of arsenical colours was common, there was considerable suffering among the workers, the symptoms described to me being skin eruptions and sore fingers; but now arsenical colours appear to be used by very few firms, and by those few they are used at rare intervals, the persons applying them never being continuously engaged at this work. Milk is generally given to these workers whilst using arsenical colours, and although I am unable to express any reliable opinion as to the efficacy of milk as an antidote, I can report that both by workers and by manufacturers it is generally credited as a useful precaution.

I am indebted to Messrs. Dickinson & Co, of King's Langley, for information in general terms relating to the colours used by them, and which in all probability are found in other firms doing similar work; they are the following :—

Steel blue, made from yellow prussiate of potash.

Maroon lake, made from insoluble oxide of tin and a redwood dye extract.

Satin white, made from alumina and sulphate of lime.

Madder lake, an insoluble lead salt—the quantity of lead per ton not being equal to more than 30 lbs., and all soluble lead being removed by repeated washing.

Pale and dark yellow. Chrome yellows, containing chromate of lead or lead sulphate, known in the paint trade as "non-poisonous white lead."

It is claimed by the firm that as all their colours are used in the pulp state, there is no risk from dust, or of colour entering the system through the lungs. Another colour (not used by this firm) may perhaps be described as "tin foil," being tin reduced by acids to the consistency of paint, which is then put on paper by cylinder machines, a bright silvery lustre being acquired by passing through friction rollers. A sample of this paper before and after passing through the rollers is forwarded.

"Chalking," or satin-polishing, is done in most works. Sometimes the chalk is put on by hand and brushed off by hand; sometimes it is put on by hand and brushed off by machinery; but generally it is both applied and brushed off by machines consisting of a hopper in which the chalk is placed, and a small hammer which taps the hopper, and causes the powder to drop lightly on the paper passing underneath, which is then brushed by a series of rotary brushes, some oscillating as well as revolving. Generally speaking, in this process there is an excessive amount of dust likely to be injurious to health. This did not appear to be disputed, and the need for proper fans and carefully adjusted suction-pipes was generally recognised. In some works such appliances exist, or are in course of construction; in others they have been tried, but discarded, being unsatisfactory, owing to palpable errors in construction.

Having referred to processes, I would summarise as follows :—

A clear distinction must be drawn between paper staining works, and paper colouring and enamelling works. So far as paper staining is concerned, measures of precaution have already been considered and approved. As to paper colouring, the possible sources of danger to health should be looked for from the following causes :—

Machine rooms, in many instances, practically form part of the same room as the drying room.

In some instances, but not generally, unnecessarily excessive temperatures are found, and mechanical means of ventilation should be provided.

Paper colouring by hand is done in the same room that the material is dried in. Here, in order to hurry on work, the persons employed are sometimes found in unhealthy and excessive temperatures, but this is by no means universal, and I think the remedy lies in the provision of suitable ventilation.

Where chrome yellows or arsenical colours are used, it seems desirable to make careful inquiry in regard to the health of persons using those colours.

In the operation of polishing with French chalk or satin polishing, suitable mechanical fans and pipes are, in nearly every case, necessary for the carrying off of dust, and should be enforced.

The paper colouring trade can hardly be properly described as a "dangerous" industry. I venture to think that it will not be necessary to approach the individual firms by letters or circulars from the head office, but if the points of danger are mentioned to H.M. Inspectors in the different districts, it would be within their power to require the provision of all necessary and suitable safeguards.

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Bronzing.

In my letter addressed to you on May 4th I submitted, on page 5, some observations relating to the process of "bronzing," and hoped that when reporting on paper colouring I might be able to offer some suggestions relating to bronzing. I was at that time under the impression that this operation was conducted in many paper colouring works. That opinion was based upon the perusal of the numerous reports from the District Inspectors, which in many cases mentioned that this work was done. I find, however, upon inquiry, that it is not done in actual paper colouring works, but on premises where letterpress printing and lithography form one department and paper colouring another. Under these circumstances I cannot include recommendations relating to bronzing in this report, but I would very respectfully submit that our position in regard to "bronzing" is one calling for very careful attention and inquiry. The reference considered by the Dangerous Trades Committee related to "Bronzing and Metallochrome Powder in Lithographic works." The Committee found it necessary to refer to metallochrome in a separate report. Bronzing in lithographic works formed the subject of the first report submitted by the Committee, and recommendations of a somewhat drastic nature were forwarded, which under certain conditions were doubtless fully justified, and when these were drawn up it was probably remembered that, according to law, individual manufacturers could raise objections and have their individual objections considered before any Special Rules could have the force of law. It will, however, be realised that it would be practically impossible (certainly unnecessary) to require that the whole of these recommendations should be applied in *all* lithographic works in which bronzing is done. Again, it must be remembered that bronzing is not confined to lithographic works, but is a process incidental to the manufacture of wallpapers, and in large numbers of letterpress printing works bronzing by hand or by machine is to be found. To the wallpaper manufacturers certain concessions have been made; and naturally, persons doing similar work in other industries will expect the same and (under some conditions) much greater ones. In some lithographic works bronzing is carried on as a continuous process by a large number of people, and here precautions are necessary which certainly could not reasonably be asked for in quite small works where bronzing is a purely subsidiary operation done at varying intervals. In some lithographic works bronzing is done by hand, in others by carefully constructed machines. It is also carried on in works which cannot be described as lithographic works. In conversation with colleagues whom I have met when visiting districts for special duties, I have found a universal desire to give effect to the recommendations of the Committee, but an equally universally expressed opinion that the whole subject is full of difficulties. Under these circumstances, I would venture to propose that the whole question of "bronzing" should be further considered, with a view to so modifying the recommendations as to render them suitable for the various conditions under which this industry is conducted.

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APPENDIX 10.

ACCIDENTS OCCURRING ON BUILDINGS IN COURSE OF CONSTRUCTION OR REPAIR.

REPORT BY MR. A. G. H. THATCHER, H.M. INSPECTOR'S ASSISTANT.

To Her Majesty's Chief Inspector of Factories.

Office of H.M. Inspectors of Factories and Workshops,
39, Victoria Street, Westminster, S.W.

SIR,

IN the following report I have endeavoured to explain and illustrate those accidents, the cause of which may be considered controllable by the builders and workmen, and have not touched upon the mishaps for which the architect is primarily responsible, and which are generally owing to erratic or miscalculated formulæ.

The dangerous conditions therefore I wish to elucidate may be divided into two classes—those arising from imperfect scaffolding, and secondly, during the lifting and carrying of material.

Scaffolding.

I think perhaps it will be interesting before going into details to give some idea of the general forms of scaffolding in use. The two principal methods are known respectively as the north and south country systems. The northern, as the name indicates, is principally used in Scotland and the north of England, although of late years it has also found favour in the South; the other method (*see* Fig. 1) is essentially the south country system.

The first method is invariably used in conjunction with power, generally a steam crane. When one crane only is necessary it is fixed upon a triangular platform built upon three legs, one at each angle, and is raised to such a height as to be well over the building to be erected. The crane stands over the principal or king leg. Owing to the guys it cannot make a complete revolution; if power is required that can be utilised on all parts of the building, the erection has a square platform with a leg at each angle, two cranes are then fixed, being placed diametrically opposite to each other.

The three or four legs, as the case may be, are of framed timber, bolted, and are weighted to the ground by masses of brickwork. The whole is so well built that accidents occurring through faults of construction are extremely rare.

The greatest dangers arise when the crane is imperfectly fixed and when the weight of the crane, engine and load is too much for the king leg on which it rests.

With regard to the first point, the guys of the crane should always be carried to the centre of the secondary legs and chained down to the masses of brickwork which weight these legs at their feet. This chain requires frequent examination, as, owing to the vibration of the scaffold, it becomes loose, and if not tightened, the crane would lose its rigidity and accidents would be likely to occur.

In the second case, where the weight is great, the king leg should have an additional centre upright running from top to bottom. (See Fig. 2, which is a plan of a king leg.)

The second form of scaffolding presents many points of interest. In order to render this report more intelligible, I have given on the sketch (Fig. 1) a number of notes which explain the technical terms used. There are two varieties again of this form of scaffold, and their use depends upon the material of which the building is being constructed, viz., either of brick or stone.

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Where bricks are in use, one row of standards and ledgers only are necessary; the putlogs resting outwardly on the ledgers and inwardly on the wall (where header bricks have been left out for their reception).

On stone buildings, and more especially when ashlar fronted and where an opening in the wall would leave a permanent disfigurement, a double set of standards, &c., are necessary to carry the putlogs. See Fig. 3, which is a section of what is known as a mason's scaffold.

A few points with regard to these erections.

The different marryings, tyings, &c., should be carefully watched, as scaffolds have been known to come down owing to the cords slipping. This happens more especially when the cords have been used damp, the influence of a hot sun causing them to relax considerably. Wedge driving between cords and posts is the usual method of tightening.

The boards on which the men work should be carefully kept in position. Fig. 4 shows the usual position of the boards. Carelessness may and does result in these losing their place, and if by so doing they take the position shown on Fig. 5, what is known as a trap is formed. Fig. 6 illustrates the working of a trap. It will be noticed that when on the boards, it is not easy to tell where the putlogs are. This creates to a great extent the danger. A certain preventive would be for the putlogs to be used in pairs, the boards then instead of overlapping could be placed end to end (*see* Fig 7). More plant would, however, be necessary, and it would entail the cutting of the boards to fit. This is, perhaps, more than can be expected from the average builder.

Two of the most common forms of accidents occur on these scaffolds. I refer to the falling of the workmen, and the dropping of the material from the upper floors of the erection. On the outside of the scaffold, also at the ends, a guard rail should be lashed to the standards about 3 feet 6 inches above the scaffold boards. This would obviate the first danger. With regard to the second, the danger from falling material is much to be deplored, as though it can occur in many ways, it is, as a rule, the result of great carelessness. A board on edge running along the outside of the scaffold, and again at the ends, would, to a great extent, prevent this class of accidents. Unfortunately, this board cannot be fixed on the inward side of the scaffold, as it would interfere with the free use of the workmen's tools.* Figs. 1 and 3 show the guard rail and board on edge.

A mason's scaffold should be supported in such a manner that no opportunity could occur for it to fall away from the building. Fig. 3 shows the shoring which is the usual method of prevention.

Before proceeding to the question of the lifting and carrying of material, I would like to mention two other conditions of risk to workmen. I refer to the insufficient width of "runs" and the use of centreing improperly supported. A "run" is a means of communication for the workmen from one part of the scaffolding to another at the same level. It is commonly seen only one board wide (9 inches). Needless to say this width is most dangerous, 18 inches being the least that should be allowed. It could then be composed of two boards which should be tied together to prevent unequal sagging. See Fig. 8, which is a plan of a working platform surrounding a courtyard or well, and gives three examples of runs.

Improperly supported centreing is seen only in cheap work. Figs. 9 and 10 give an example of what I mean. It will be noticed that the supports to the centreing of Fig. 9 are kept in their position entirely by the lateral pressure exerted by the stay A. It follows that, if this pressure is eased sufficiently, say by shrinkage, it is more than probable that the centreing and a large portion of the unfinished arch would fall. Fig. 10 shows the centreing properly supported. All supports to centreing should rise from a solid foundation.

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* I have recently visited some buildings in London, and noted to what extent guard rails and boards on edge were in use, with the following result:—

Total number of scaffolds noted...	36
No. fully guarded with rails	9
No. partially „ „ „	9
No. fully guarded with boards on edge...	26
No. partially „ „ „ „ „	4

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The Lifting and Carrying of Material.

Very little danger arises during the lifting and carrying of material so far as the power in use is concerned. The accidents generally occur owing to the defective manner by which the material is secured to the crane, pulley wheels, or whatever the arrangement for lifting may be.

I will take each class of material separately.

Ironwork.

Ironwork is principally used in the form of girders or columns. They are sometimes slung by a chain round the middle and as evenly balanced as may be. There is considerable danger of this chain slipping, however well balanced, more especially if the load when swinging is tilted, say by receiving a jar through touching some part of the erection and thus allowing the material to fall. To prevent this a second chain should be run from each end of the column or girder to a point some distance up the supporting chain.

Timber.

Timber in lengths can be carried in the same manner as the iron girders, but owing to the greater friction set up between wood and iron, it is not so likely to slip as the former. The same precaution, however, is necessary.

Bricks, Slates, &c.

Bricks, slates, &c. in large quantities are slung in crates, in smaller quantities in baskets, and in small work are carried in hods by labourers.

The crates (Fig. 11) will carry as many as 350 bricks. It will be noticed that they are not fitted with sides. This is to facilitate loading. The chief danger arises from their use when they are improperly packed. When suspended the pull on the handles causes the ends to take an inward slope. If the crate is tightly packed this pull creates a pressure on the material and tends to keep it in position, but if loosely packed the absence of sides would allow of danger, as the material could easily fall out.

If a similar crate was used to carry a roll of lead, it would be necessary to place a stay (B, Fig. 12) across the top to counteract and relieve the strain at the bottom.

When baskets are used, the danger lies in the handles. If they are hooked to chains, which is the usual method (Fig. 13), the weight may and does cause them to give way. The remedy is for the chain or rope to be carried round the basket, as shewn in Fig. 14.

Stone.

There are several methods of lifting stone. It can be lifted in the same manner as ironwork, or may be suspended by means of a "lewis," or again by means of nippers.

The first method is perhaps the safest, but is generally used for undressed work only, as the chain is apt to break up any finished edges, &c.

The second method—by a lewis. A hole is cut into the stone wider at the bottom than at the top, three pieces of iron, as shown on Fig. 15, are fitted into it, the outside or splayed pieces first, and the rectangular centre piece last. A bolt running through the top of each fixes its position, and at the same time secures a ring into which the hook, by which it is to be lifted, is placed. This arrangement will lift a very great weight. They are made in all sizes to suit, the softer the stone the deeper they ought to be in proportion to the weight. The risk of its giving way if the stone is not free from vents, or when the lewis does not fit the hole, or again, if the weight is not evenly distributed, is considerable. Its use with perfect safety can only be left to the judgment of the mason.

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The nippers clutch the stone on the outside. Danger may arise if the small holes picked out to receive the nippers are so near the top edges of the stone that the points drag out; or again, the centre of gravity may be above the points, causing the stone to turn over and fall.

I have so far assumed that the plant in use has been, both in point of quantity and quality, and the first is of equal importance to the latter, fully sufficient. It is regrettable that often in actual practice this has been found to be not so. Inferior tackle has been and is responsible for many accidents. Many lives, again, could have been saved if a little forethought had been used, and compliance made to those unwritten rules by which workmen should be guided. Fig. 16 will give a clear illustration to my meaning. A labourer, in building a scaffold, required a ledger at point A. He fetched it from point B. He carried it upon his right shoulder, and in turning the corner in the direction of the arrow, the end of the pole struck against standard C. The recoil immediately knocked him off the scaffold. If the pole had been upon his left shoulder, the blow would have fallen harmlessly and his life would not have been lost.

In conclusion I submit the following suggestions which, if carried out, would, I believe, materially reduce the number of accidents occurring on buildings in course of construction or repair:—

(1) All working platforms above the height of 10 feet taken from the adjacent ground level, should, before employment takes place thereon, be provided throughout their entire length on the outside and at the ends, with a guard rail fixed at a height of 3 feet 6 inches above the scaffold boards. Openings may be left for workmen to land from the ladders and for the landing of material.

(2) All working platforms above the height of 10 feet taken from the adjacent ground level, should, before employment takes place thereon, be provided throughout their entire length on the outside and at the ends, with boards fixed so that their bottom edges are resting on or abutting to the scaffold boards. The boards so fixed should rise above the working platform not less than 7 inches. Openings may be left for the landing of the workmen from the ladders.

(3) All "runs" or similar means of communication between different portions of a scaffold or building should be not less than 18 inches wide. If composed of two or more boards they should be tied together in such a manner as to prevent unequal sagging.

(4) Scaffold boards forming part of a working platform should be supported at each end by a putlog, and should not project more than 6 inches beyond it unless lapped by another board, which should rest partly on or over the same putlog and partly upon putlogs other than those upon which the supported board rests.

In such cases where the scaffold boards rest upon brackets, the foregoing suggestion should read as if the word bracket replaced the word putlog.

N.B.—Experiments have shown that a board with not more than a 6-inch projection over a putlog can be considered safe from tripping or tilting.

(5) All supports to centreing should be carried from a solid foundation.

(6) In places where the scaffolding has been sublet to a Contractor, the employer should satisfy himself, before allowing work to proceed thereon, that the foregoing suggestions have been complied with, and that the material used in the construction of the scaffold is sound.

I remain,

Your obedient Servant,

A. G. H. THATCHER.

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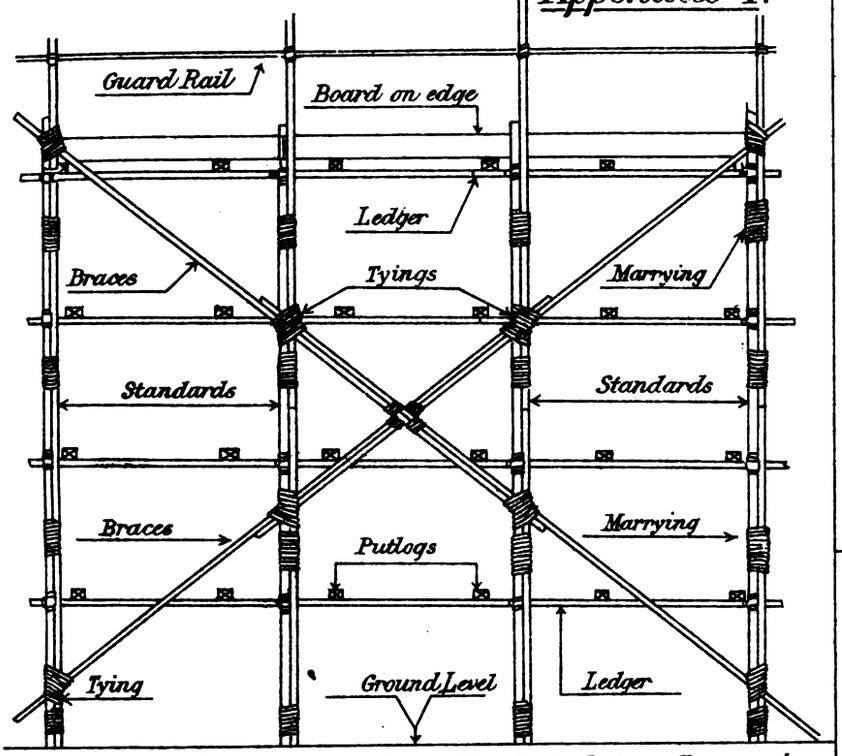
Appendix I.



Marrying and Tying are the joining of Standards, Ledgers, Braces, etc., together.
Standards are the upright poles, and support Ledgers.
Ledgers are the transverse poles and support Putlogs.
Putlogs carry Boards.
Braces prevent lateral movement.

FIG. 1.

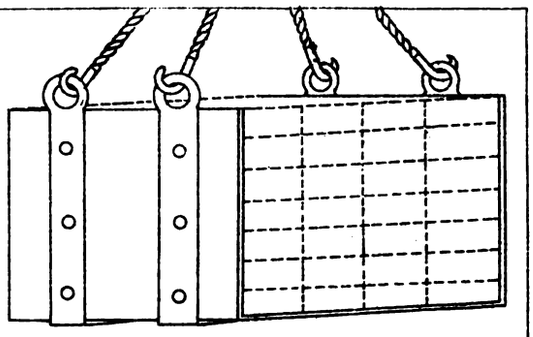


FIG. 11.

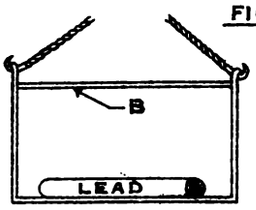


FIG. 12.

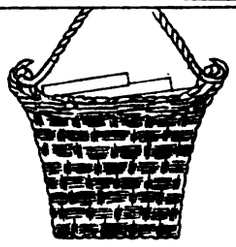


FIG. 13.

FIG. 14.

FIG. 2.

FIG. 15.

Shewing levis fitted into Stone

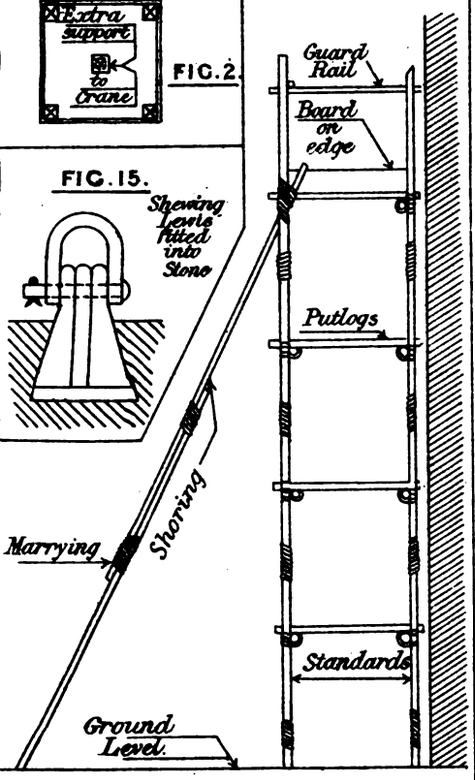


FIG. 3.

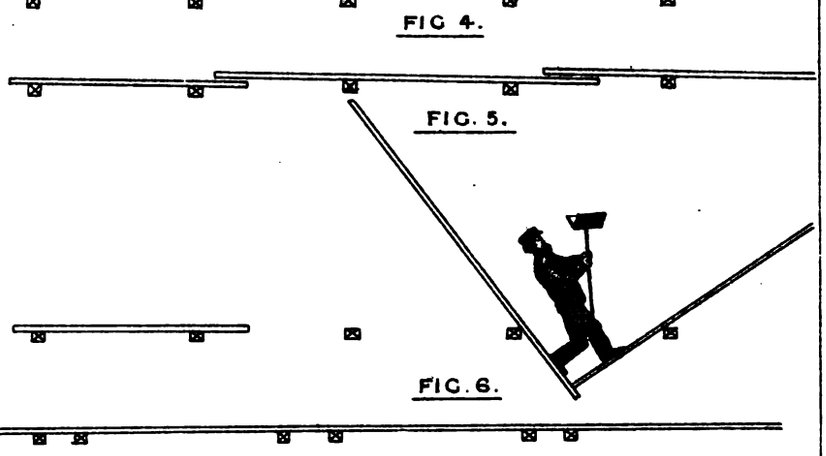


FIG. 4.

FIG. 5.

FIG. 6.

FIG. 7.

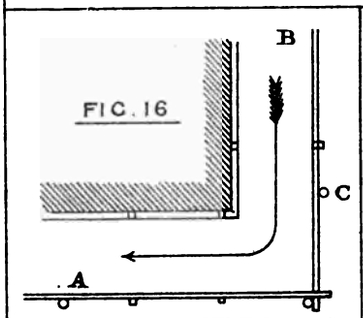


FIG. 9.

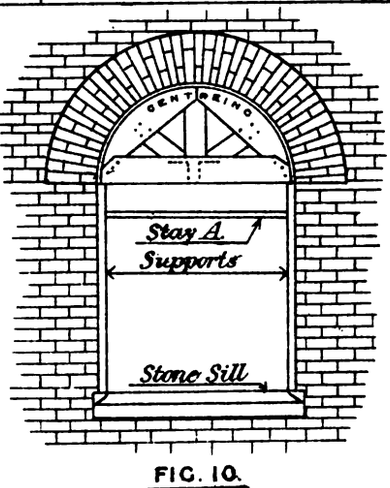


FIG. 10.

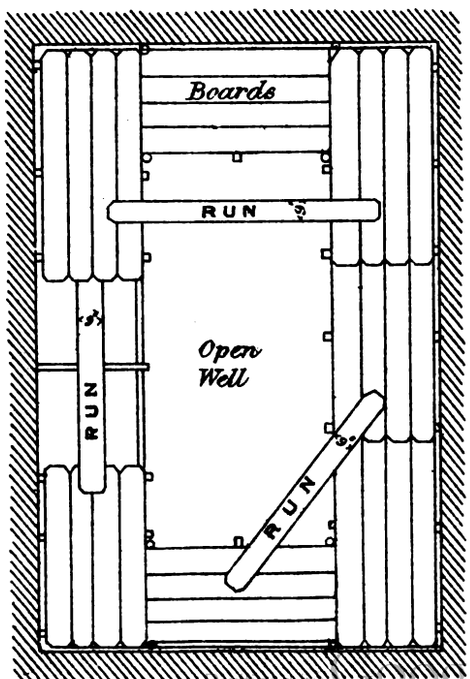


FIG. 8.

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United Kingdom : 1900. Fatal Accidents Reported to the Factory Department as occurring in Buildings in course of Construction and Repair in the United Kingdom.

Nature of Accidents.	No.	Remarks.
Falls from scaffolding	26	—
Materials falling on workmen from scaffolding.	3	—
Hauling up bricks (*i.e.* breakage of handles, &c., of hauling apparatus).	5	—
Insufficient overlapping of boards and tilting of boards.	1	Plank slipped from ladder on which it was partly supported.
Other causes—Accidents in places under s. 23, ss. 1 (*b*) and 2 (*a*), 1895 Act.	29	Including one fall from a wall, and one case of fall of stone from works being dismantled.
Total	64	

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APPENDIX 11.

CREAMERIES IN IRELAND.

A.—From the Home Office to the Irish Agricultural Organisation Society.

Whitehall, S.W.,
8th August, 1900.

SIR,

I AM directed by the Secretary of State to say that the Factory Bill having been withdrawn, it becomes necessary for him to reply further to the representations made in your letter of March 14th last and supplemented by the Deputation which he received on the 21st of that month. While he hoped that Parliament would pass the Bill giving the necessary exemptions to the Creameries, the Secretary of State was able temporarily to abstain from any prosecution for certain contraventions of the existing requirements; but the case is altered now that the prospect of immediate legislation has disappeared.

The Secretary of State has fully considered the several points which were raised, and he is glad to have the advantage of the information you have laid before him, in addition to reports of the Inspectors some of which have been published in the Annual Report of the Chief Inspector for 1899.

He observes that it is admitted that the statutory requirements have not been fully observed in certain creameries in Ireland even in matters presenting no serious difficulty, but he trusts that he is right in assuming that closer attention will be given to them in future. This applies more especially to annual holidays.

In your letter it is suggested that "the prescribed weekly half-holiday need not necessarily be given on Saturday, but may be allowed on any other day of the week." If this means only the formal substitution of another day in place of Saturday for the whole of the women, young persons, and children employed in a given factory, there is nothing to prevent the occupier from following that course, subject to the giving of the notices required by the Acts. If it means that different half-holidays should be appointed for different persons in the same factory, the Secretary of State will be prepared to consider the issue of an order under section 49, 1878; but it must be understood that even if this were done the different half-holidays must be appointed for the different sections of the employés (except male adults) and not changed without due notice.

With reference to the daily period of employment on Saturdays and ordinary week-days, the Secretary of State has no power under the existing law to sanction such a scheme as is suggested in your letter, namely, a period of 10 hours, not necessarily consecutive, and not controlled by the present statutory limits. Upon this it is to be observed—

First, that the need for further latitude does not arise when the plan of a single daily delivery is adopted; and it does not appear that there can be any insurmountable difficulty in the general adoption of that course which is already followed in a large number of Irish Creameries. He regrets to note the statement that the alternative plan of delivery twice daily, which causes increased difficulty in complying with the law, is gaining ground. The Inspector's report is to the contrary effect.

Secondly, that to a limited extent the Acts allow of modification under orders which the Secretary of State has power to make. These are—

(*a*) Permission for women to work overtime in emergency processes under section 56, 1878, for two hours on not more than five days a week, and not more than 60 days in any 12 months;

(*b*) Permission to substitute a 9–9 period of employment for the 6–6, 7–7, and 8–8 periods allowed by the Acts;

(*c*) Permission to fix different periods of employment for different branches of departments under section 39, 1895.

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Before such an order could be made it would have to be considered how far the departments in question were each of a distinct kind, carried on separately in different parts of the factory and by different persons.

Thirdly, that section 15, 1891, authorises under certain conditions as to notices, the employment of women and young persons for eight hours on Saturday if the eight hours' limit is observed on every other day also.

The period of employment of adult males is, of course, unaffected by the Acts.

The Secretary of State would be glad to have the observations of the Society on these points in order that he may be in a position to consider how far a case could be made out for the grant of any of the exemptions permitted by the existing Acts.

As regards Sunday labour he has no power to modify the statutory limits and it rests with the occupiers to consider how the requirements of the law in this respect can best be met. It appears that this has been done in some instances by employing only men on Sunday, on others by closing the works on that day. The Secretary of State notes the observations of the Society as to the difficulties attending the adoption of these arrangements in the South and West of Ireland; but he gathers from the reports which he has received that if (as is already the case in a considerable and increasing number of Irish Creameries) suitable appliances for cooling and pasteurising are provided, the need for employment of women on Sunday can be avoided, even in summer, and that in the cooler months it does not arise. He understands that in Denmark such appliances are now invariably adopted in all co-operative dairies, and with advantage as regards the quality of the butter made, although in that country the question has not arisen on the score of Sunday labour.

It will be the duty of Inspectors to report fully every instance of this and other irregularities which may come to their notice in creameries, and the Secretary of State trusts that before the difficulties to which reference is made in your letter recur next summer, the available means of meeting them without breach of the Acts will have been generally adopted in the South and West of Ireland as elsewhere.

I am, &c.,

(Signed.) KENELM E. DIGBY.

The Secretary to the Irish
Agricultural Organisation Society, Ltd.,
22, Lincoln Place, Dublin.

B.—From the Society to the Home Office.

APPLICATION OF FACTORIES AND WORKSHOPS ACT TO CREAMERIES.

Irish Agricultural Organisation Society, Ltd.,
Offices:—22, Lincoln Place, Dublin,
2nd October, 1900.

SIR,

WITH reference to your letter of the 8th August, which, owing to most of those interested being away on holidays, has remained unanswered till now; I beg to inform you that the points raised by you were submitted to Special Committee meeting held yesterday.

I am to convey to the Home Secretary the thanks of the Committee for his sympathetic attitude in regard to the case which we submitted on behalf of the Creameries, and to regret that the Government were obliged to withdraw their Factory Bill. The Committee regret that they cannot see their way to modifying the proposals which were embodied in my letter of the 14th March, and urged by the deputation which waited on Sir Matthew White Ridley on the 21st of that month. They note that your Inspectors state that the practice of supplying milk once daily to creameries is on the increase. This is not their experience, and they are forced to the conclusion that the Inspectors have formed this opinion from the fact that the increase in creameries is greater in the North of Ireland, where a single daily delivery is the rule, than in the South, where it is found impossible wherever pasteurisation is carried out.

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In your letter you suggest that suitable appliances for cooling and pasteurising should be provided for every creamery so as to obviate the necessity for Sunday work. It is well to point out that milk which has developed the slightest degree of lactic ferment will not stand pasteurising temperature without curdling, and it is quite impossible for large milk suppliers (and there are many farmers in the South of Ireland who milk upwards of 100 cows) to provide utensils of sufficient capacity and the expensive appliances which would be required to keep their milk sweet for the period suggested. In the North of Ireland this question does not present the same difficulty owing to the small quantity of milk which each farmer has to deal with. With reference to Denmark, I may state that Sunday churning is the rule in that country.

The Committee learn with regret that there is no power under the existing law to alter the working hours in creameries. They thought that as the total number of working hours was not to be exceeded there would be no difficulty in conceding this request, more especially as it has been proved conclusively that the working hours do not injuriously affect the health of the workers.

The Committee wish to avail themselves of the modifications suggested in your letter, which are as follows :—

(1) The substitution of any day in the week for the Saturday half-holiday.

(2) Permission for women to work overtime under section 56 of the Act of 1878.

(3) Permission to substitute an 9–9 period of employment for a 6–6, 7–7, or 8–8.

I am to ask whether, in the event of a creamery adopting these hours, they would be bound to adhere to them at all times. The Committee do not think that the power to employ women and young persons for eight hours on Sunday would be of any advantage, having regard to the fact that this is only permitted when an eight-hours day for the rest of the week is the rule.

The whole intention and spirit of factory legislation has been directed towards affording protection to the physical and moral health of the workers, but my Committee cannot believe that Parliament intended this legislation to be applied in such a manner as to injuriously affect an important industry in which so many women and young persons find healthy and profitable employment.

I am, &c.,

R. A. ANDERSON,
Secretary.

Sir Kenelm E. Digby, K.C.B.,
Home Office,
Whitehall.

C.—From the Home Office to the Society.

Whitehall, S.W.,
20th October, 1900.

SIR,

WITH reference to your further letter of the 2nd instant, stating that the Committee of the Irish Agricultural Organisation Society wish to avail themselves of certain exceptions from the provisions of the Factory Acts in regard to overtime, variation of the Saturday Half Holiday, and the period of employment at creameries, I am directed by the Secretary of State to say for the information of the Committee that he is not sure that they fully realise the powers which occupiers of creameries already possess in regard to the first of these matters, or what the effect of the last exception asked for would be upon the industry. For example, as regards overtime, section 56 of the Act of 1878, as extended by an order of the Secretary of State dated the 22nd August, 1893, already allows overtime to be worked in non-textile factories in which the occupations of preparing cream and making butter and cheese are carried on. The wishes of the Committee, therefore, would appear to be already met in this respect.

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Similarly as regards the substitution of another day in the week for Saturday, section 46 as applied by an order of the Secretary of State, dated the 22nd December, 1882, already authorises the occupier of any factory or workshop in which is carried on the making of any article of food (including therefore any creamery) to substitute by a notice affixed in the factory or workshop some other day for Saturday, and in such cases the Acts will apply in the creamery as if the substituted day were Saturday and Saturday an ordinary work day. The exception asked for by the Committee appears, therefore, to be already open to occupiers of creameries.

With reference to the application for sanction of a 9-9 period of employment (by order under section 43 of the Act of 1878), the Secretary of State is not sure that that course would give occupiers the assistance they desire. It would prevent the employment of women and young persons before nine in the morning, and under section 19 of the Act of 1878 the period of employment when fixed by the occupier cannot be changed oftener than once in three months, unless for special causes allowed in writing by the inspector. He would be glad if you would further consider this point.

The Secretary of State does not understand whether for the purpose of varying the weekly half-holiday and the period of employment it is the wish of the Committee that separate branches or departments of creameries should be allowed to be conducted independently as separate factories under section 39 of the Act of 1895, see the Home Office letter of August 8th, 1900. He observes, however, that no reference to this is made in your letter.

The Secretary of State thinks that for the purpose of clearing up these and any other difficulties it will probably be the most convenient course if the subject can be discussed verbally between yourself and the officers of the Factory Department. The superintending Inspector, Mr. Cooke Taylor, will be in Dublin at the end of the present month, and will be instructed to place himself in communication with you. It may probably also be desirable that you should see Dr. Whitelegge, the Chief Inspector of Factories, and if you are in London during the course of the next month or two he would be able to see you by appointment at any time that you might arrange to call at the Home Office.

I am, Sir,
Your obedient Servant,
CHARLES S. MURDOCH.

The Secretary to the
Irish Agricultural Organisation Society, Limited,
22, Lincoln Place,
Dublin.

D.—From the Society to the Home Office.

Re APPLICATION OF THE FACTORY ACTS TO CREAMERIES.

Irish Agricultural Organisation Society, Ltd.,
Offices :—22, Lincoln Place, Dublin,
12th March, 1901.

SIR,

WITH reference to previous correspondence on this subject, I beg to inform you that as suggested in my letter of 3rd December, 1900, I had an interview with Dr. Whitelegge on the 5th instant. As a result of this interview I am now requested by the Committee of creamery proprietors having charge of the matter, to submit for your consideration the following definite proposals for regulating the hours of labour in such creameries as employ female labour :—

(1) That permission should be granted to allow them to work on Sundays for a specified period of three hours, *e.g.*, from 6 to 9 a.m. during the months of May to October inclusive.

(2) That on week days the total hours worked by women shall not exceed 11 hours (including meal times) so as to compensate for the three hours worked on Sunday.

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(3) The periods of employment to be from 6 a.m. to 12 noon, and from 4 p.m. till 9 p.m., the spell of employment in no case to exceed five hours without an interval of at least half-an hour for meals.

(4) While the creameries are at the present season (winter) complying with the requirements of the Acts of Parliament, in so far as they relate to Sunday labour and working hours, they will find it impossible to do so in summer for the reasons stated previously. They are, however, prepared to do so, with the exceptions and within the limits indicated above. It is also to be noted that no exemption is asked for in respect to holidays.

(5) It having come to our knowledge that certain creameries had not complied with the regulations regarding notice of holidays, the Irish Agricultural Organisation Society issued the attached circular,* accompanied by the forms referred to therein.

(3) With regard to the last paragraph of our letter of 3rd December, 1900, in which the exemptions asked for were claimed only in respect to the South and West of Ireland, I am to say that the recent rapid development of creamery dairying in Ulster, renders it highly probable that before long a similar need may arise in that province also. We, therefore, think it advisable that the exemptions above referred to should apply to every dairying district in Ireland alike, Ulster included.

Trusting that these suggestions may meet with favourable consideration.

I have, &c.,

R. A. ANDERSON,

Secretary.

To the Under Secretary of State,
Home Office,
London, S.W.

E.—From the Home Office to the Society.

Whitehall,
29th March, 1901.

SIR,

I HAVE laid before the Secretary of State your letter of the 12th instant respecting the regulation of the hours of labour in such creameries as employ female labour, and I am directed by him to say, for the information of the Irish Agricultural Organisation Society, that he is quite alive to the importance of this question, and he has dealt with it in the Factory Bill which he introduced on the 28th instant in a manner which he hopes the Society will find satisfactory.

He is glad to have the assurance of the Society that, with the exceptions suggested in your letter of the 12th instant, they are in a position to comply fully with the requirements of the Factory Acts.

I am, &c.,

HENRY CUNYNGHAME.

The Secretary to the
Irish Agricultural Organisation Society,
22, Lincoln Place, Dublin.

* Not printed here.

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APPENDIX 12.

THE FENCING OF NEW MACHINERY AND APPLIANCES USED IN FACTORIES.

Memorandum addressed to Makers of Machinery.

Home Office,
November 1900.

The attention of makers of machinery and appliances used in factories is invited to the importance of adequately fencing the dangerous parts in the process of construction and fitting. While much progress has been made in applying guards to existing machinery, it is unsatisfactory to find that new machines, in other respects improved, are still sent out by the makers without due regard to this essential point, and that precautions which are taken as a matter of course in the case of those made for export, are often omitted in the construction of like machinery intended for use in the United Kingdom. Hence many serious and fatal accidents arise, and at best the fencing which can be carried out later by the purchaser is usually less effective and more costly, even apart from the risks attending delay. And further, it is obviously more easy when designing a machine to provide proper places for guards, than to have to fit guards on to a machine designed without any provision being made for them. In fact, a machine otherwise well designed may be made almost valueless for trade purposes by the difficulty or impossibility of adapting to it those means of fencing which the law renders necessary.

Continental and American makers of machinery have lately gone far in the direction of sending out guarded machines, those for printing and lithographing being marked examples, and in this country improvement has occurred of late in certain classes, of which cotton machinery and chaff-cutters are specially mentioned in the official reports.

The statutory responsibility for proper fencing is being pressed upon occupiers of factories, not only by this Department but also by accident insurance companies ; and it is believed that if in designing machinery regard were had to the necessity of providing for fencing, and if in quotations for making and fixing machinery and appliances adequate fencing were expressly included, the purchaser would not fail to recognise the greater safety and convenience, and also the ultimate economy, to be secured in this way.

These observations apply not only to certain machines as a whole, such as wood-working machines and power presses of all kinds, but also to common parts of machinery, such as mill-gearing, fly-wheels of engines and machines, belts, pulleys, ingathering cog-wheels, and set screws (which should invariably be countersunk instead of being exposed in couplings, etc.), on anything which revolves, and to the fitting of safety appliances to hoists. Low shafting should be fenced when fitted.

For obvious reasons it is not the practice of the Inspectors to give any official approval of methods or appliances which would lend itself to advertisement, but any information or suggestion which the Department can supply as to points of danger (general or in the case of special kinds of machinery) or the means of protection, is at the disposal of those interested. Many examples of the kind will be found in the published reports of this Department, and a few extracts, bearing more especially upon fencing of new machinery, are appended.

ARTHUR WHITELEGGE,
Chief Inspector of Factories.

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Extracts from Part II. of the Annual Report of the Chief Inspector of Factories for the Year 1898.

During the enquiry into cotton machinery conducted by Mr. Beaumont and myself through the past year, my attention has been more especially drawn to the great need there is throughout the kingdom for insisting on the imperative countersinking of all set screws, &c., leaving no projections on anything that revolves, and the effective covering of toothed wheels so that no danger shall be left between the wheels and guards. The number of accidents due to the absence of these precautions to which our attention was directed was very large.—(*Mr. Richmond, Liverpool; page* 16.)

I am glad to note that the makers of worsted and woollen machinery continue to send out machines, on the whole, better guarded in detail than some of the earlier patterns.—(*Mr. Shinner, Bradford; page* 16.)

The use of projecting set-screws on drill and lathe chucks is growing gradually less, although accidents from this cause still continue to come in, and many workmen persist in using projecting set-screws, even after the chucks have been altered and recessed to allow the screw to go "flush" with the chuck.

The result of the use of guards to lathe change wheels is shown in the diminished number of accidents reported this year from this cause.

About the time the Workmen's Compensation Act came into force I was asked to meet the chief draughtsman of the largest tool maker in my district, to discuss with him the guarding of the dangerous parts of the tools they make. As a result of this interview, I am informed that this firm are paying special attention to this in the construction of their machines. This is a step in the right direction, for one cannot help but sympathise with a man who has bought an expensive lathe, drilling machine, or shaping machine, and as soon as he has got it fixed is requested by the Inspector to "guard it." He very naturally supposes that, going to a first-class maker, the tool, as sold, is perfect and not only is he probably not in a position to guard it as neatly as the maker, but it is sure to cost him more. I suggested to the tool makers referred to that they should issue on their quotations two prices—A for the tool, B for the same tool guarded as required by the Factory Act. I am sure there is an opening here for makers to increase the popularity of their machines, and the same applies with almost greater force to gas engines, the users of which have generally less facilities for making guards than the users of lathes, &c. In this respect (*i.e.*, the guarding of dangerous parts of tools) I have noticed that American machinery is generally sent out by the makers much more efficiently guarded than those made by English firms.

Accidents have frequently happened owing to the injured person being unaware of the danger that existed inside the guard. To meet this difficulty one firm of engineers in this district have adopted the plan of painting every guard a bright red, which by no means detracts from the appearance of the machine, and is intended to act as a "danger signal" to the user of the machine.—(*Mr. Jackson, Walsall; page* 17.)

Gas engines of a kind are, to my mind, one of the curses of a Factory Inspector. The better-class machines are, of course, carefully guarded as to the crank and mitre wheels of the various supplementary motions before they leave the manufacturers. But the cheaper class of gas engine is generally not so guarded.—(*Mr. Wolfe, Birmingham; pages* 18–19.)

Having now sufficient justification for taking action, I am ordering front flock boards or other guards to be applied to all cropping machines; the makers have gone into the subject and are producing different patterns of guards to suit the varied requirements of their customers, and we hope, as far as possible, to put a stop to the cutting off of the finger ends of lads who are employed in attending to cropping machines.—(*Mr. Prior, Huddersfield; page* 20.)

To meet with a lathe, the dangerous parts of which are unguarded, is to-day a very rare occurrence, as the protecting of all the cog-wheels has now become almost universal. Our thanks, as Inspectors, are due to the makers of machinery, who have helped us largely in this direction by having regard to the requirements of the Act in the design and turn out of new machinery.—(*Mr. Lewis, Wales and Monmouth; page* 30.)

Extracts from the Annual Report of the Chief Inspector of Factories for the Year 1899.

I have not much to complain of under this head, but makers of machinery do not trouble themselves to suggest sending fencing when they supply machinery, unless it is being supplied for going abroad; then, as a matter of course, fencing is sent too. Employers will always fence where they are assured it is necessary, but too often wait to be told, or let an accident happen first: their one idea is to get the machinery running, and get the fencing done when they can find time. The fencing of lathe cogs is a particular case in point. I always try to get a complete casing round the change and other wheels, and the outer side to open or slide back

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like a cupboard door; this obviates the necessity of removing the fencing for any purpose.—(*Mr. Hoare, Norwich; page* 123.)

Much more might, I think, be done by the makers of machinery in fencing dangerous parts. Fencing which, if done during construction, is simple and cheap, is often difficult, costly, and invariably "patchy" in appearance when supplied by the user afterwards. H.M. Inspectors might, I think, do more in this direction by impressing the importance of the subject on manufacturers of machinery.—(*Mr. Vaughan, North London; page* 123.)

I occasionally come across employers who demur at my suggestions as to guarding machinery, but generally speaking I have little difficulty in obtaining compliance with my requests. I find that several Insurance Companies in connection with the Workmen's Compensation Act are now making it a condition that circular saws and other dangerous machinery shall be effectually guarded. This has, no doubt, a beneficial influence and materially assists our endeavours.—(*Mr. Pearson, Brighton; page* 123.)

The higher standard of fencing which has been adopted has probably resulted from more clearly defined regulations and closer inspection, whilst some of the best makers have at last begun to send out their machinery with the dangerous parts properly guarded. In this respect English manufacturers have for some time lagged behind their German and American rivals.—(*Mr. Harston; page* 124.)

It would seem that the top gate of a hoist can be almost always made to open automatically, and it is strange how few have been made so when there is no difficulty about it.—(*Mr. Fearon, North London; page* 125.)

I think that the practice of engineers applying guards to the machines constructed by them is increasing. It has largely done so within my experience, especially in the case of American machinery. I hope before long to have secured the assistance of the two largest power press makers in Birmingham in the provision of guards and of lever tackle in place of treadle for these machines. As mentioned by Mr. Wolfe, there is a great improvement in the construction of aërated water machines in this respect, as there also is in regard to emery wheels.—(*Mr. Knyvett, Birmingham; page* 165.)

Lathes have proved the most fruitful source of accidents, but with the covering over of the change and back gear wheels (all cog-wheels) of a large number of the lathes in this district, I believe the accidents are greatly reduced. I am glad to see that makers of lathes now generally send out these tools with covers over the cog-wheels already fitted.—(*Major Roe, Birmingham; page* 166.)

In a large bicycle factory I noticed some automatic machines beautifully guarded. I asked who the makers were, and was told they were a German firm. Similar machines from English makers had to be guarded on their arrival at the works.—(*Mr. Wolfe, Birmingham; page* 179.)

In dealing with the fencing of textile machinery we have during the past year made a special effort to induce machine makers to provide interchangeable guards for all dangerous parts, which can be applied without much trouble to machines already in use. Having been fairly successful in this task, the work of persuading the users to attach the required safeguards has been much easier when we have been able to convince them that the makers of their machines could supply them with guards much cheaper and more effective than the unsightly and often useless guards of home manufacture, which have generally been produced when the fencing of old machinery has been required by us.—(*Mr. Prior, Huddersfield; page* 187.)

The Cotton Machinery Report lately issued by the Home Office has, I am pleased to say, been well received both by makers of machinery and by masters' associations. In visiting recently the works of some of the largest cotton machinery makers I have found that copies of the Report have been furnished to foremen in each department, whilst the representatives of one of the largest federations of masters, at an interview requested by them, expressed approval with almost every recommendation in the Report.—(*Mr. Richmond, Manchester; page* 213.)

I have paid great attention to this subject during the time I have been stationed in the Rochdale district. I am still, after four years' experience, convinced that the only way to combat the evil of so much new machinery being started without fencing is to have it done by the makers before it leaves their works. Four of the largest and most enterprising firms are in this district, and I have had frequent conferences with them upon the subject, with the result that great improvements have been made during the last two years; but much more remains to be done, for new machinery is daily being set to work in Lancashire which is not up to the requisite standard by a very long way. I have invariably suggested to occupiers that when ordering new machinery they should have a clause in the contract stating that machinery shall be fenced in accordance with the requirements of the Factory Act, but I have not been able to persuade every one to act upon it.—(*Mr. Wright, Rochdale; page* 214.)

Many excellent safeguards have been invented by the manufacturers of agricultural machinery, who, in some cases, have incorporated the new Act in their catalogues and widely advertised descriptions of the appliances required to comply with the Act. The result is that the safeguarding of chaff-cutting machines is proceeding rapidly.—(*Mr. Rogers, Manchester; page* 217.)

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There is nothing in the present Acts which compels a machine maker, in erecting new machinery, to leave it with full attachments and safely guarded; hence we have a large number of machines left in an incomplete and dangerous condition, such as cogwheels exposed, projecting set screws and keys, no loose pulleys or strap forks, the latter notably on carding engines and drawing frames. New occupiers of factories place implicit trust in the various makers of machinery and consider them experts, and are only made aware of the dangers through some accident or a visit from an Inspector.—(*Mr. D. Walmsley, Stockport; page* 214.)

The following recommendations, contained in a Special Report by Mr. Beaumont and Mr. Richmond, are applicable to machinery in general :—

1. Set screws, &c., on anything that revolves should be countersunk.
2. Exposed shaft-ends should be covered.
3. Toothed wheels should be covered so as to leave no danger between the guard and the wheels.
4. Loose pulleys and strap forks should be provided for all machines.
5. Plate wheels, or wheels filled in, should be substituted for all exposed armed wheels running at high speed; where this is impracticable, the wheels should be fenced.

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APPENDIX 13.

ACCIDENTS IN DOCKS.

Circular Letter addressed to Occupiers and others.

Home Office,
28th September, 1900.

I am directed by the Secretary of State to transmit to you a copy of the Report made by Mr. Maitland and Mr. Eraut, two of Her Majesty's Inspectors of Factories, who were appointed by him to hold a special inquiry into the causes of accidents occurring at docks, wharves and quays, and the means which it may be possible to take for their prevention.

The Secretary of State instituted this inquiry in consequence of the reports received from the Inspectors of Factories since these places were brought under their care by section 23 of the Factory and Workshop Act, 1895. The published returns of the accidents occurring in docks, wharves and quays—in 1899 no less than 115 deaths and 4,591 non-fatal accidents were returned—show that the occupation of a dock labourer is one of the most dangerous of those that come within the scope of the Factory Acts.

After considering the Report, the Secretary of State is satisfied that the matter cannot be allowed to remain in its present position, and that further and more systematic precautions are necessary to safeguard the persons engaged in this occupation.

He desires, therefore, to bring the recommendations contained in the Report under the notice of dock owners and others, to inquire what steps are being taken by them to adopt the precautions suggested so far as they are not already observed, and to receive any observations which they may desire to offer on the subject of the precautions recommended, or the method of enforcing them. For this purpose he specially calls their attention to pages 15 to 26 of the Report. The Inspectors by whom the inquiry was made there classify the sources of accidents at docks under several headings, the chief of which are: 1. Accidents from falls, including falling into the water, ship's hold, &c., and falls of goods while being hoisted; 2. Accidents from machinery, including accidents caused by dangerous parts, such as cog wheels being unfenced, overloading of cranes, breakage of chains, persons becoming entangled in winch and capstan ropes, &c., &c.; 3. Accidents from the use of railway locomotives. Under each head a number of precautions in detail are enumerated by the Inspectors, which call for immediate and careful consideration. There are also certain important precautions of a general character to which it will be necessary to give special attention, such as (1) increased supervision with a view among other things to preventing the use of defective machinery materials and chains, the management of winches by incompetent persons (it appears that this duty is sometimes left to young boys for long hours and at night—see page 10), the improper use of appliances and machinery, disobedience to regulations, &c.; (2) the fencing of dangerous parts of machinery, and the fencing of stages, hoists, dangerous parts of quays, &c.; (3) provision of proper and efficient life-saving appliances; and (4) the efficient lighting of docks.

The Secretary of State proposes to circulate copies of the Report to Inspectors of Factories and to Coroners throughout the county, in order that in investigating the causes of future accidents they may be in a position to ascertain whether the necessary precautions have been taken by those on whom the responsibility rests.

In the meantime he will be glad if, as soon as possible, and in any case before the end of the present year, you will report to him what steps you have taken, or propose to take, in order to carry out these recommendations.

I am,
Your obedient Servant,
HENRY CUNYNGHAME.

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APPENDIX 14.

TIN PLATE WORKS.

Circular Letter addressed to Occupiers.

HOME OFFICE,
July, 1900.

SIR,

THE reports received from the Inspectors of this Department show that the conditions which they have found to prevail in several of the tin plate works are far from satisfactory, more especially as regards the ventilation of the stacks in connection with the flux pots, and the removal of the dust created in polishing the plates. Another point of a different kind is the practice of allowing young girls to carry heavy loads of tin plates far beyond their strength.

The appended report* of the Medical Inspector gives particulars of the defects noted by Mr. Lewis and himself in some tin plate works where zinc chloride flux is used, and you will observe the suggestions which he makes for improving the conditions. It should be added that Mr. Lewis has found that the raising of the stacks has materially improved the ventilation of the tin-house.

Reference is made in the report to the fine dust diffused into the general atmosphere of the tin-house from the polishing of the tinned sheets. Since the Medical Inspector reported, further evidence has been received of the increased use of "pink" meal (an analysis of which by Professor Thorpe, F.R.S., is given in the report referred to), and of other even more injurious polishing powders, without any attempt being made to prevent the inhalation of the dust by the workers.

Owing to interference with respiration and other causes, it has not been found practicable to insist on the wearing of respirators by workpeople, except when the operation in which dust is generated is of short duration. Other means than the wearing of respirators, such as the carrying on of the process of polishing the plates in a covered-in machine connected by shaft with the open air, or the removal of the dust at the point where it is produced, are necessary.

I shall be glad if you will inform me of any steps which you have taken or propose to take in the direction of (*a*) improved draught through the stacks, and (*b*) removal of dust, and if you would at the same time favour me with any observations or suggestions bearing upon the subject for the information of this Department and of other manufacturers.

I am, &c.,
ARTHUR WHITELEGGE,
Chief Inspector of Factories.

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* Not reprinted here. *See* pp. 329, 330, 331 of the Annual Report for 1899.

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APPENDIX 15.

HORSEHAIR WORKS.

Circular letter addressed to Occupiers.

HOME OFFICE,
May, 1900.

SIR,

THE recent increase in the number of reported cases of anthrax arising from the manipulation of horsehair, especially in the processes incidental to curling, has received the attention of this Department, and the accompanying report* of the Medical Inspector gives particulars of the incidence in 1899.

The resolution passed by several of the manufacturers referred to in that report, whereby certain dangerous classes of hair are in future to be excluded from use by them unless a guarantee of efficient disinfection is given, appears to be a step in the right direction, but in view of the grave doubt as to the practicability, under present conditions, of securing efficient disinfection elsewhere than on the premises and under the direction of the manufacturer, it is to be feared that any guarantee so given will be illusory.

Pending further inquiry into the conditions under which steam disinfection is effective and practicable, it may be pointed out that there are other means whereby manufacturers dealing in untreated horsehair may diminish risk of anthrax to the operatives, namely, by

(1) Opening and sorting Chinese, Russian, and Siberian hair over tables with a down draught created by a fan or forced draught.

(2) (*a*) The covering of all carding and dust extracting machines, and the removal of the dust by means of a fan or forced draught; (*b*) the collection of the dust so removed in proper receptacles, and its subsequent destruction by heat.

(3) Exclusion of workpeople suffering from cuts or scratches (unless covered over with a suitable dressing) from processes in which they are likely to come into contact with dust from any dangerous kind of hair which has not either being boiled or otherwise disinfected.

(4) Provision of sufficient and suitable lavatory accommodation, and instruction to the workmen to wash their hands carefully after handling dangerous hair, and before taking food. The standard fixed for other dangerous processes lately brought under Special Rules is at least one wash-hand basin for every five persons employed as above, each basin being fitted with a waste-pipe, and having a constant supply of water laid on; the washing conveniences also comprise soap, nail-brushes, and towels.

While the danger of anthrax is greatest in the manipulation of hair imported from China, Russia, and Siberia, the disease is so widely distributed that in no country is it unknown, and consequently the precautions which are most necessary where hair from the countries named are dealt with, can, with advantage, be applied to hair from other countries.

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* Not reprinted here. *See* pp. 322, 323, 324 of the Annual Report for 1899.

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It is important that the workpeople should be made aware of the symptoms of anthrax and of the necessity for prompt treatment when they appear, and there would be advantage in the posting up of some such notice as the following:—

Anthrax is a fatal disease affecting certain animals which may be conveyed from them to man by the manipulation of the hair of animals which have died of the disease. The germs of the disease (anthrax spores) are found in the dust, and in the pieces of skin adhering to the hair, and may remain active for years. In this country anthrax among animals is rare, and precautions are taken to prevent any portion of the infected animal coming into the market, consequently there is little danger in manipulating the hair of animals slaughtered in the United Kingdom.

Infection from hair coming from South America is also rare; but in Russia, Siberia, and China the disease is common, and infected hair (which does not differ from other hair in appearance) is often shipped to British ports. Hence in handling such hair, and especially mane hair, care should be observed.

The disease is communicated to man sometimes by breathing or swallowing the dust, but much more usually by the poison lodging in some point where the skin is broken,—such as a fresh cut or a scratched pimple or even chapped hands. This happens most readily on the uncovered parts of the body, the hand, arm, face, and most frequently of all, on the neck. Infection may also be brought about by rubbing or scratching a pimple with hand or nail carrying the anthrax poison.

The first symptom of anthrax is usually a small inflamed swelling like a pimple or boil, often quite painless, which extends, and in a few days becomes black at the centre and surrounded by other "pimples." The poison is now liable to be absorbed into the system and will cause risk to life, which can be avoided only by prompt and effective medical treatment in the early stage while the poison is still confined to the pimple. Hence it is of the utmost importance that a doctor should *at once* be consulted if there is any suspicion of infection.

I shall be obliged if you will inform me of any steps which you have taken or propose to take (in the above directions) for the protection of the workpeople in your employment from anthrax, and if you will at the same time favour me with any observations or suggestions bearing up on the subject, for the information of this Department and of other manufacturers.

I am, Sir,

Your obedient Servant,

Arthur Whitelegge,

H.M. Chief Inspector of Factories.

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APPENDIX 15.

HATTERS' FURRIERS.

Circular Letter addressed to Occupiers.

Home Office,

December, 1900.

SIR,

1. Careful enquiry has been made by the Factory Department into the conditions under which hatters' furriers' processes, involving the use of nitrate of mercury, are carried on. It is found that the processes are attended with serious risk to the workers. Definite cases of mercurial poisoning calling for medical treatment have occurred, and among persons examined while at work in the factory injurious effects from the use of nitrate of mercury have been noted.

2. The provisions of Section 29 of the Factory and Workshop Act, 1895, were, by order of the Secretary of State, dated 27th March, 1899, extended to mercurial poisoning contracted in a factory or workshop, and thus it became the duty of the occupier to notify every such case to the Certifying Surgeon and to the Inspector in charge of the district. It has recently come to the knowledge of the Department that since the Order came into force, cases of mercurial poisoning among persons engaged in hatters' furriers' processes have been admitted as in-patients in hospital, without this notice having been sent by the occupier.

3. Few combinations can be imagined more likely to affect detrimentally the health, and more particularly the teeth, of workers than that of mercury and nitric acid even when diluted with water. The vapour of either singly would in time impair the teeth, but in combination they cause premature decay and loss. The typical condition in persons who have been engaged in carotting for some years is loss of the molars in the upper and lower jaws. The upper incisors and canines are not infrequently absent, and such teeth as remain (generally the lower incisors and canines) are characteristically blackened and often loose. They show a tendency to erosion from the acid fumes and frequently the gums recede so that the anterior surfaces of the roots are exposed. The same condition of the teeth has also been noted frequently in persons who have been engaged for several years in such processes as cutting and locking. It is unnecessary to dwell upon the injury to health which must result from so seriously defective a condition of teeth.

4. The following figures give the result of the examination by the Medical Inspector of 111 persons, in eight different factories, who had worked for one year and upwards :—

Process.	Number Examined.			Teeth Bad.				Teeth Fair.				Tremor.			
	M.	F.	Total.	M.	F.	Total.	Per cent.	M.	F.	Total.	Per cent.	M.	F.	Total.	Per cent.
Carotting	12	18	30	7	13	20	66·6	5	5	10	33·3	...	1	1	...
Other Processes ...	16	65	81	4	23	27	33·3	12	42	54	66·6	1	16	17	21·0

They bring out clearly that among those engaged in "carotting," injury to the teeth from the action of the acid fumes is the most marked symptom, while among

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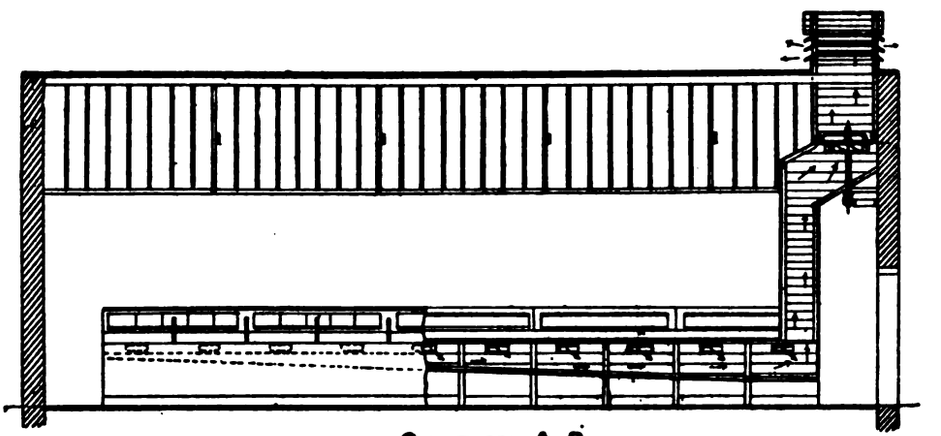
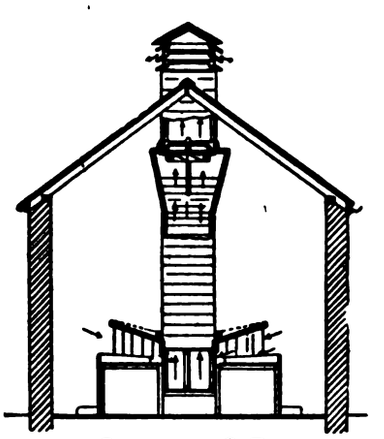
those engaged in the later processes, tremor of the hands and nervousness, symptoms which are characteristic of the absorption of mercury, preponderate.

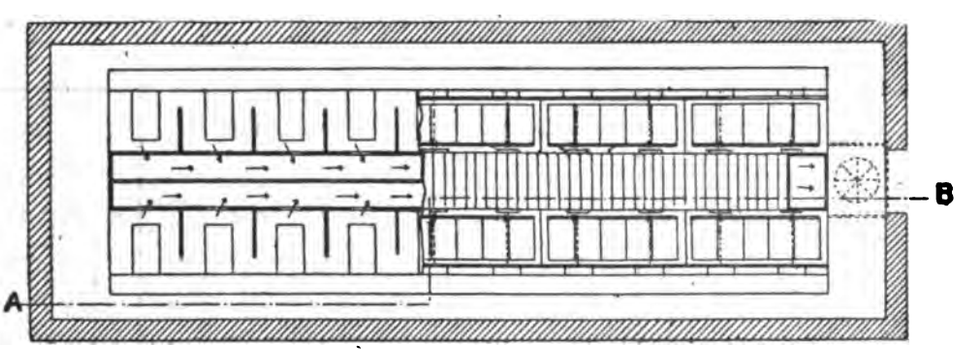
5. It is necessary to remove by means of a fan or other efficient mechanical means the fumes arising in the process of carotting, and this should not be a difficult matter to arrange. In some factories power is used for driving the cutting machines and for the removal of dust from the brushing machines, and a small portion only would require to be diverted to carry the fumes away from the carotting benches. The accompanying diagram, furnished by the Engineering Adviser of the Department, illustrates the manner in which this may be done. Sections A, B, and C, D, show the benches with a hood or air guide into the openings in the wooden trunk and the extraction fan. In the plan a portion of the benches are shown with the adjustable (glass) covers removed. The position of the fan will vary according to circumstances.



SECTION A.B



SECTION C.D.



PLAN

6. In the process of cutting and brushing, the injurious effects noted have been brought about by the inhalation of particles of fur impregnated with nitrate of mercury.

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Dr. Thorpe, F.R.S., Principal of the Government Laboratory, has found the proportion of nitrate of mercury in a "fur" submitted to him for analysis to be 1·34 per cent. In some factories the dust from the brushing machines is now removed by a fan and it is necessary for this method of removal to be generally adopted.

It is not less necessary to secure the same result in the case of cutting machines. In one factory, where formerly the dust from the cutting machines was excessive, a completely successful result, both as regards removal of dust and economy in work, has recently been obtained by enclosing the upper part of the machines and connecting the receptacles under the knives with a shaft in which is placed a fan to draw the dust into a chamber. Apart from the use of fans, the amount of dust created by the cutting machine was found to vary in different factories, and to depend largely on the efficiency of the draught created by the revolving knives and the closeness of the fittings of the receptacle into which the bulk of the dust is carried. In very few instances was it found that overalls or head coverings had been provided for the workers in processes where there was dust.

7. Occupiers, it is felt, are not sufficiently aware of the advantage which would accrue from the institution of a periodical medical examination of the workers, similar to that in vogue in several industries under Special Rules. As the symptoms resulting from the use of nitrate of mercury are produced very gradually, it does not seem that the examination need be so frequent as in industries where lead is used. A quarterly examination would serve to warn the occupier of incipient mercurialism amongst the workers and enable him to arrange for transference for a time to other processes not involving exposure to mercury. The Surgeon could enforce the necessary observance of cleanliness of hands and care of the teeth under threat of suspension from work if they be neglected.

8. At present the facilities for washing provided in the majority of cases are inadequate. The standard which should be adopted is, as in other dangerous processes lately brought under Special Rules, at least one wash-hand basin for every five persons employed in processes involving exposure to fumes of nitrate of mercury or to dust impregnated with it, each basin being fitted with a waste-pipe and having a constant supply of hot and cold water laid on; soap, nail-brushes, and towels being also provided.

9. The foregoing points (1) removal of the fumes and dust, (2) periodical medical examination with power to the Certifying Surgeon or other medical practitioner appointed to suspend temporarily or permanently from work, and (3) suitable and sufficient washing conveniences, are of primary importance. There are others, however, which should be brought to the notice of the manufacturers.

10. The mixing of the acid and mercury should be done in the evening after working hours, and under conditions which secure the removal of the fumes. The proportions of mercury and nitric acid and the dilution of the mixture with water vary considerably in different factories, and as might be expected, the evidence points to less injury resulting to the workers in those factories where the proportion of acid and mercury is least.

11. The amount of handling of the skins by the carotters also varies greatly. In some works handling is entirely obviated by the use of a stick or forceps in the left hand to prevent the skins slipping. Where this is not done rubber gloves should be provided and kept in constant repair.

12. The stoves are generally of old and faulty construction, and persons have to enter to hang up the wet skins, and to remove them when dried. In a very few cases only has this been obviated, by the adoption of "horses" which slide on rails in and out of the chamber.

13. The daily sweeping, after effectual damping, of the accumulation of the waste fluff and dust in the processes which come after carotting, and the cleaning of the machines themselves, have not been found to be practised as systematically as is desirable.

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14. For obvious reasons no food ought to be taken in a place in which fur pulling or any subsequent process of treatment of the skins with nitrate of mercury is carried on. It is most desirable that a room entirely apart should be assigned for meals.

15. It has been observed that persons as young as thirteen have been employed in processes such as picking and locking. Though children may not be specially susceptible to the injurious influence of mercury, their employment is clearly undesirable by reason of the less attention to necessary precautions which can be expected of them. The attention of manufacturers is called to the French Law of 13th May 1893, in which the treatment of the skins and furs of hares and rabbits with nitrate of mercury is scheduled among others as an industry in which no woman or child may be employed; and to a decree of the Belgian Government of April 15, 1898, prohibiting the employment of children or young persons under sixteen years of age in factories or workshops where nitrate of mercury is used in the preparation of hare or rabbit skins.

16. I shall be obliged if you will inform me of any steps which you have taken or propose to take for the protection of the workpeople in your employment from the injurious effects of nitrate of mercury, and if you will at the same time favour me with any observations or suggestions bearing upon the subject, for the information of this Department and of other manufacturers.

I am, Sir,

Your obedient Servant,

ARTHUR WHITELEGGE,

Chief Inspector of Factories.

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APPENDIX 17.

INDUSTRIAL LEAD POISONING.

Further Memorandum, supplementing that of December, 1898, as to the circumstances in which (1), cases occurring in House Painters and Plumbers, and (2) recurring attacks in the same person, should be notified.

I. The object of the notification of lead poisoning is of course to obtain a clue to dangerous conditions over which the Inspectors can exercise control, and hence the requirements under section 29, 1895, is limited to cases which appear to have been contracted in a factory or workshop. Beyond these limits the Home Office has no power to interfere, and plumbism otherwise acquired, *e.g.*, from lead in drinking water or even from industrial occupation outside the Factory Acts, could not be dealt with by the Factory Department. Moreover, any reports of the kind being non-statutory, would be incomplete, and could have but little statistical value.

The opinion to be notified is not merely that the patient is suffering from lead poisoning, nor even that he is suffering from industrial lead poisoning, but that he is the subject of lead poisoning which the practitioner believes to have been contracted in a factory or workshop.

There are, however, doubtful cases, and perhaps the most typical instance is that of house painters, who, as such, are altogether outside the province of the Factory Acts; so that no duty of notification arises and nothing can be done by the Factory Inspectors to amend the conditions which cause the risk of lead poisoning; and further, there is no power to pay a fee for a notification which is not in accordance with the terms of the section.

If, however, a house painter spends some portion of his time in a factory or workshop occupied by his employer, in processes such as grinding lead, pigments, or mixing lead paints, the question may legitimately arise whether his case does not become reportable, seeing that risk, though in minor degree, is incurred there as well as in his usual outdoor work. In several instances attacks of plumbism in painters or plumbers have been notified in which, after laborious inquiry by the Inspectors, and sometimes by the Certifying Surgeons also, no ground could be discovered for assuming causation at a factory or workshop, and consequently no remedial action could be taken.

In order to avoid unnecessary trouble on the part of all concerned, the practice now adopted at the Home Office is to accept the certificate on the assumption (1) that the practitioner is in a position to say that the patient is employed in connection with a given factory or workshop in which, from the nature of the work carried on, risk of lead poisoning may reasonably be anticipated, and (2) that no case will be notified in which this is not so. The particular workshop or factory should be stated in the notification certificate.

The reported cases of plumbism among plumbers and house painters are referred to the District Inspector, and by him to the Certifying Surgeon where necessary. These cases are classed apart from the rest in the published returns.

II. Doubt has been felt by some practitioners as to the circumstances in which recurring attacks of lead poisoning in the same person require renotification. There can be no question that if the affected person continues to work in lead, successive attacks,

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especially, when distinct from those preceding, should each be notified. Only in this way can knowledge of the progress of the case be gained, and in industries under Special Rules where a periodical examination of the persons employed is required, repeated attacks in the same person may point to need for more stringent use of the power of suspension from work on the part of the Certifying Surgeon or Appointed Surgeon.

The case of persons affected with chronic lead poisoning, who have ceased to work at any lead process stands on a somewhat different footing, seeing that the latter phases are not attributable to any new exposure to harmful factory or workshop conditions. Such cases have presumably been reported on previous occasions, and it is hardly necessary for a medical practitioner to renotify the continuance or even recurrence of plumbism of long standing after employment in dangerous processes has come to an end.

ARTHUR WHITELEGGE, M.D.,
Chief Inspector of Factories.

Home Office,
March, 1900.

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APPENDIX 18.

MECHANICAL VENTILATION,

Memorandum as to, attached to the reference to the Committee on Fans and Respirators.

HOME OFFICE,

July, 1900.

Mechanical ventilation is required in certain factories and workshops for various purposes of general and local ventilation, principally for removing impurities due to respiration or to combustion (whether for lighting or heating), for maintenance of proper temperature, and for carrying off dust, fumes, spray, and steam.

(1.) In some few instances it seems to have been found practicable to secure a sufficiently powerful and steady local ventilation in dusty processes by means of connection with furnace chimneys, and recourse has been had also to draught induced by steam jet. There have been many attempts at special ventilation without a forced draught, which have naturally ended in failure; and in some instances paddle-fans have been used in such a way as to churn the air without removing or renewing it. It is desired that the difficulties and limitations of these alternatives, which are still frequently proposed by manufacturers, should be explained.

(2.) In general, where artificial ventilation is necessary, fans moved by power are required, and the report should state clearly the points to be kept in view in an installation of this kind in the varying circumstances to which reference has already been made. What is desired is concise and definite instructions* which can be placed in the hands of a manufacturer who is required to provide fans, indicating as far as possible the number, pattern, size, speed, and position of fans which would most effectually and economically give the desired result.

(3.) In this connection cost is a very material point to be dealt with in general terms, or by means of illustrative cases; and as bearing upon this it will, no doubt, be necessary to refer to the choice of motive power in different circumstances if the ordinary power of the factory is not available. Gas, oil engines, electricity, water power, and even weights or hand or foot power, in case of intermittent use, may be suggested.

(4.) It should further be considered what special openings to the outer air are needed, how far other means of natural ventilation should be used concurrently, and whether the mechanical ventilation is to be by propulsion or extraction of both.

(5.) Local ventilation (*i.e.* an exhaust so arranged as to be effective at the point where dust or fumes are generated, and thus to carry them away at the point of origin without allowing them to mix with the air of the room) has received much attention of late in connection with several codes of Special Rules. It will be a material service if the conditions of efficiency can be succinctly stated, of course subject to due consideration of the special purpose in each case. Thus the standard (in terms of volume or velocity) of draught, the area over which the exhaust is required to be operative, the utility of hoods or screens in concentrating and making more effective a given draught, and the possible difference in effect of a downward, horizontal, or upward extraction, are points for consideration.

* Whether to be conveyed by the report itself or by a leaflet based upon it is a matter for later consideration.

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In the application to particular processes special modifications may be called for, and it would be well that indication of these should be given in the report. Thus, in the ventilation of dipping slabs in lucifer-match works, it has been proposed to place an air inlet on the near side of the slab, and to force a current of air across the slab to the exhaust on the further side. In this instance, it has been further proposed to charge the auxiliary draught with turpentine, thus "conditioning" the incoming air, though quite locally, in somewhat the same way that air is warmed and moistened in certain textile factories.

This statement might with advantage be supplemented by directions for practical testing of the efficiency of an exhaust, whether by anemometer or by means of smoke or visible fumes. (Under the Special Rules for Woolcombing the form of test is to be prescribed.)

(6.) For the guidance of Inspectors it may be possible to state broadly (in terms of carbonic acid, movement of air, amount and character of dust, or fumes, or spray, hygrometric state, or in other ways) the conditions in which natural ventilation is called for. As regards dust, for example, danger may arise by reason of injurious effects upon the respiratory organs, or poisonous or infective qualities, or the formation of an explosive mixture with air. The visible characteristics are very variable, the light soft combustible rounded particles of flour, for instance, being in contrast with those of steel dust. These conditions, and the degree in which they call for mechanical ventilation, may usefully be considered in the report. Reference has already been made to the detail of arrangement at the exhaust opening; but general instructions are needed as to the position of the fan in relation to the openings themselves, the calibre of the ducts, and the point of discharge into the open air.

(7.) Whether the dust removed by fan power be valuable or merely a waste product means of interception need to be provided. The dimensions and cleansing of ducts, and the character, number, position, and cleansing of dust chambers are leading points. In some cases sprinkling before removal of dangerous dust, or interception in water, or automatic collection in bags (serving as air filters into which the duct is led) may be adopted with advantage. It has been proposed to intercept iron filings by magnets. The cases in which dust is given off from wider sources, as for example in heavy grinding, may need special consideration.

(8.) In many workrooms the conditions are not such as to call for mechanical ventilation, and it is accepted that under proper conditions and management natural ventilation can fulfil all reasonable requirements. A broad definition of these necessary conditions, structural and administrative, would be of great value in the practical work of the Factory Department. The following are some of the questions which arise in this connection:—

(1) How far is the adequacy of a given air space dependent upon the height, and how far is the value of height as a factor in the practically available air space affected by the size of the room?

(2) What can be regarded as sufficient communications with the outer air, and what reasonable rules can be laid down as to their being kept open even in inclement weather?

(3) Should any distinction be made in the case of basement rooms?

(4) What allowance ought to be made in case of artificial lighting other than electric light? (*See* section 1 (2) 1895.)

In certain classes of factories there are now statutory standards of purity of air (in terms of carbonic acid and humidity), and these may serve as a broad indication in the case of workrooms generally.

Respirators.

In certain codes of Special Rules the wearing of respirators is compulsory, but in practice the obligation has proved difficult to enforce, and it would seem that this is due, not merely to carelessness and prejudice, but also to the inefficiency and cumbrous

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character of the respirators provided, and possibly, to some degree, of discomfort and interference with respiration being inevitable.

Information is desired as to the physiological effects of different kinds of respirators; for example, the effect upon the circulation and respiration of moderate work respectively, with and without respirators. In some instances to which reference is made in the Annual Reports of the Chief Inspector, the amount of dust collected by a respirator has been observed and recorded.

It should also be considered how far respirators charged with chemicals can be usefully employed to counteract poisonous fumes. Moist iron oxide has been thus used in case of chlorine and nitrous fumes.

In distinguishing the efficient and inefficient kinds of respirators, it may be necessary to have regard to the conditions of use, *e.g.*, the severity and continuity of work and the amount and character of the dust. It may, perhaps, be possible in a given case to suggest some degree of efficiency of dust removal by mechanical ventilation which would justify the substitution of a lighter form of respirator or discarding respirators altogether.

It will be convenient to specify, for the guidance of employers and workpeople, the bad as well as the approved forms of respirators, and to point out the practical objections to each of the former. As regards the latter, full particulars as to materials, construction, weight, and cost will be valuable, not only for those who have to buy and use respirators, but also for manufacturers who may desire to make them.

References bearing more or less directly upon the subjects of enquiry will be found in several statutes (more especially sections 3 and 36 of the Factory and Workshop Act of 1878, sections 1, 31, 32, and 33 of the Factory and Workshop Act of 1895, the Cotton Cloth Factories Acts) in the Cotton Cloth Factories Order of 1898, and other Orders of the Secretary of State, in the Special Rules for certain dangerous trades, in the published reports of various committees and experts, approved by the Secretary of State, to enquire into and report upon specified dangerous trades, and in the reports issued by the Factory Department. Copies of these will be at the disposal of the Committee.

B. A. W.

July, 1900.

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APPEN

Accidents reported by Certifying Surgeons as due to Locomotives

No.	Industry. (1)	Injured Person. Occupation. (2)	Sex. (M. or F.) (3)	Age. (4)	Whether employed as Child, Young Person, or Adult. (5)	Accident. Date. (6)	Causation. (7)
						1900.	
1	Engines	Labourer.. ..	M.	21	Adult.. ..	June 7 ..	By engine and barrow.. .. .. ..
2	Steel	Locomotive fireman.	M.	23	Adult.. ..	June 9 ..	Locomotive eased and sprag flew out ..
3	Waggons	Labourer.. ..	M.	19	Adult.. ..	June 21 ..	Caught between buffers of waggons, both of which were set in motion.
4	Dock	Labourer.. ..	M.	25	Adult.. ..	June 26 ..	Stone fell from a passing waggon .. ..
5	Dock	Shunter	M.	30	Adult.. ..	June 29 ..	Struck by sprag .. ..
6	Dock	Labourer.. ..	M.	40	Adult.. ..	June 29 ..	Run over by locomotive .. .. ..
7	Warehouse	Porter	M.	28	Adult.. ..	June 29 ..	Crushed between waggon and warehouse stage, owing to engine attached to the waggon moving.
8	Gas	Potman	M.	50	Adult.. ..	June 30 ..	Injured person was standing with one foot on rail when locomotive came up.
9	Soap	Fireman labourer	M.	28	Adult.. ..	July 3 ..	Caught between waggons set in motion by engine.
10	Steel	Hooker on traction engine.	M.	43	Adult.. ..	July 4 ..	Caught between engine wheel and lurry
11	Dock	Shunter	M.	31	Adult.. ..	July 5 ..	Fell, owing to the brake lever suddenly dropping.
12	Iron smelting ..	Locomotive fireman.	M.	19	Adult.. ..	July 7 ..	By buffer of engine .. ..
13	Dock	Fireman	M.	18	Adult.. ..	July 7 ..	Jammed between front of locomotive and a girder lying near the rails.
14	Iron smelting ..	Labourer.. ..	M.	65	Adult.. ..	July 9 ..	A piece of locomotive funnel was broken off by contact with water pipe and struck injured person, who was working near the line.
15	Iron and steel ..	Locomotive fireman.	M.	35	Adult.. ..	July 10 ..	Run over by trucks and locomotive engine.
16	Engineering	Locomotive driver.	M.	31	Adult.. ..	July 10 ..	Collision of locomotives .. .. ..
17	Dock extension ..	Locomotive fireman.	M.	15	Young person	July 10 ..	Run over by bogie .. ..
18	Engineering	Labourer.. ..	M.	20	Adult.. ..	July 11 ..	Knocked off waggon which was struck by locomotive.
19	Steel	Slagger and coal wheeler.	M.	50	Adult.. ..	July 13 ..	Pug engine passed over his foot .. ..
20	Engineering	Fitter	M.	23	Adult.. ..	July 16 ..	Caught between footplate of engine and tender.
21	Railway carriages ..	Washer	M.	20	Adult.. ..	July 23 ..	Injured persons head coming into contact with beam at end of shed, owing to the train being started.
22	Shipbuilding.. ..	Shipwright apprentice.	M.	15	Young person	July 24 ..	Run over by waggon .. ..
23	Iron and steel ..	Locomotive haulier at cinder tip.	M.	21	Adult.. ..	July 26 ..	Caught by buffers of waggon .. ..
24	Dock	Mate	M.	38	Adult.. ..	July 27 ..	Crushed between buffers of waggons ..
25	Engineering	Engine cleaner..	M.	19	Adult.. ..	July 28 ..	Caught between stationary engine and two other engines being pushed into the shed.
26	Iron founding ..	Pipe loader ..	M.	29	Adult.. ..	July 30 ..	Caught between buffers of waggons ..
27	Salt	Office boy ..	M.	16	Young person	July 30 ..	Drawbar broke .. ..

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DIX 19.

registered from 1st July to 31st December, 1900.

No.	ACCIDENT.		REMARKS.
	Precise employment of injured person at time of accident. (8)	Nature and extent of injury. (9)	(10)
1	Standing between two lines of rails	Contusion of right leg	Engine passed and caught barrow, throwing it against the injured person.
2	Taking a sprag out of bogie wheel	Contusion of leg and laceration of finger.	
3	Separating waggons	Contusion of abdomen	
4	Repairing temporary railway	Slight abrasion of knee.	
5	Putting sprag in wheel of waggon	Contusion of leg	The waggon was moved by a locomotive.
6	Getting under the waggon to fetch a basket that had fallen there.	Fatal	
7	Looking for invoices at side of waggon	Contusion of hip.	
8	Tending producer	Contusion of foot.	
9	Standing in the four-foot way between two waggons.	Contusion of chest.	
10	Placing plank of wood between loaded lurry and traction engine.	Contusion of abdominal muscles.	
11	Sitting on the brake lever during shunting operations.	Internal shock.	
12	Taking up broken chain attached to ladle	Internal—not severe	Jacket caught in drawbar, and before he could release himself the engine advanced and crushed him.
13	Going to quay for shale	Contusions of thigh and abdomen.	
14	Ladling slag from furnace	Contusion of right wrist.	
15	Shunting	Fatal	Apparently fell off buffer on which he was seated.
16	Shunting	Laceration of face	Whilst shunting at points of railway within works the uncoupled locomotive from waggon too soon, and the locomotive, which had considerable way upon it, ran into another engine causing the injured person's face to come into contact violently with the look-out glass.
17	About to turn points	Fatal	Stumbled when running to turn points and fell across rails.
18	Labelling casks in waggon	Fracture of nose.	
19	Sitting on slope with foot on the rail, waiting for the engine to make a shunt.	Laceration of foot, probably demanding amputation.	The certifying surgeon is of opinion that the injured person must have fallen asleep on the slope.
20	Putting coupling rod between engine and tender.	Contusion of chest and shoulder	A shunting engine pushed against waggons and closed the gap between the engine and tender of the locomotive, where the injured person was engaged.
21	Cleaning lights in guard's van	Contusions at the back of head	It is customary for the engine driver to whistle before starting the train—the injured person was new to the work, and did not know whether he heard the whistle blown or not.
22	Walking over a steel plate and fell	Fracture of left thumb.	
23	Coupling waggon to cinder tub	Contusion of arm	The buffers of waggon were higher than those of cinder tub.
24	Shunting waggons—pushing a loaded waggon along the line.	Fatal.	
25	Cleaning engine in shed	Contusion of side.	
26	Getting into a waggon, one hand being on buffer.	Severe contusion of middle finger of right hand.	
27	Riding on engine	Contusion of left leg.	

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Accidents due to Locomotives registered

No.	Industry. (1)	Injured Person. Occupation. (2)	Sex. (M. or F.) (3)	Age. (4)	Whether employed as Child, Young Person, or Adult. (5)	Accident. Date. (6)	Causation. (7)
28	Dock	Locomotive fireman.	M.	19	Adult ..	1900. July 31 ..	Injured person was slipping waggons whilst making a "flying shunt." The shunter thought they were unhooked and turned the points, so that the trucks were pulled off the line and jammed injured person's foot against the back panel of engine.
29	Warehouse	Shunter	M.	20	Adult.. ..	July 31 ..	Caught between buffers of engine and waggon.
30	Iron	Bricksetter ..	M.	20	Adult.. ..	August 2 ..	Knocked down by locomotive .. ..
31	Iron	Locomotive fireman.	M.	23	Adult.. ..	August 4 ..	Crushed between locomotive and wall of pig-bed.
32	Dock	Fireman	M.	34	Adult.. ..	August 9 ..	Caught between rod and crank .. ..
33	Dock	Tipper of buckets	M.	17	Young person	August 9 ..	Waggon ran over him owing to an engine coming in contact with it.
34	Iron	Labourer.. ..	M.	22	Adult.. ..	August 10 ..	Caught between buffers of locomotive and truck.
35	Iron and steel ..	Lighter up ..	M.	30	Adult.. ..	August 13 ..	A portion of roof of engine shed was knocked on injured person by jib of locomotive crane coming in contact with it.
36	Engineering	Labourer.. ..	M.	30	Adult ..	August 14 ..	Ladder on which he was working struck by locomotive.
37	Steel	Locomotive fireman.	M.	20	Adult.. ..	August 14 ..	Crushed between waggon and skull of ladle that was close by.
38	Iron and steel ..	Locomotive fireman.	M.	20	Adult ..	August 15 ..	Injured person's coat sleeve caught in waggon attached to locomotive in motion.
39	Machines	Labourer.. ..	M.	40	Adult.. ..	August 16 ..	Injured person was knocked against a truck.
40	Engineering	Relief driver ..	M.	27	Adult.. ..	August 20 ..	Caught between engine and pillar of shed house.
41	Iron founding ..	Engine driver ..	M.	31	Adult ..	August 21 ..	Crushed between end of large wooden prop and boiler of an engine.
42	Engineering	Cleaner, but at the time of accident acting as shunter.	M.	21	Adult.. ..	August 21 ..	Fell in front of driving wheel of locomotive owing to some cinders, on which he was standing, shifting.
43	Iron	Shunter	M.	19	Adult.. ..	August 22 ..	Shunting pole broke and his foot caught in the switch, causing him to fall.
44	Iron and steel ..	Greaser at converter crane.	M.	18	Adult.. ..	August 23 ..	Knocked down by a locomotive .. ..
45	Bricks	Labourer.. ..	M.	54	Adult.. ..	August 23 ..	Run over by waggon .. ..
46	Iron	Rivetter	M.	39	Adult.. ..	August 23 ..	Slipped off engine in motion owing to side of boot (which was cracked) catching in footplate.
47	Dock	Labourer.. ..	M.	30	Adult.. ..	August 25 ..	Jammed between buffer and box .. ..
48	Engineering	Rivet heater ..	M.	15	Young person	August 25 ..	Caught between waggons .. .. ..
49	Iron and steel ..	Platelayer ..	M.	54	Adult.. ..	August 27 ..	Run over by van being shunted .. ..
50	Iron and steel ..	Locomotive fireman.	M.	15	Young person	August 29 ..	Crushed between locomotive and wall ..
51	Engineering	Point turner ..	M.	15	Young person	August 30 ..	Fell, owing to a mound of rubbish being alongside the line — a locomotive passed over his legs.
52	Iron mill	Coal discharger	M.	66	Adult.. ..	August 30 ..	Run over by waggon .. ..
53	Iron and steel ..	Shunter	M.	40	Adult.. ..	August 30 ..	Axle of slag bogie broke whilst being drawn by engine; bogie upset and jammed injured person against a stack of pig iron.
54	Iron and steel ..	Slag tipper ..	M.	35	Adult.. ..	August 31 ..	Struck by locomotive which was being used for shunting.
55	Steel	Pit cleaner ..	M.	19	Adult.. ..	August 31 ..	Caught between box of wheel of truck and wall.
56	Iron	Locomotive fireman.	M.	18	Adult.. ..	August 31 ..	Fell on line and was struck by wheels of bogie.

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from 1st July to 31st December, 1900—*continued.*

No.	ACCIDENT.		REMARKS,
	Precise employment of injured person at time of accident. (8)	Nature and extent of injury. (9)	(10)
28	Shunting	Contusion of right foot.	
29	Shunting a ballast waggon	Contusion of right arm	Injured person applied the brake with his left instead of his right hand.
30	Crossing the tramway	Loss of left foot.	
31	Uncoupling waggons	Fracture of right collar bone.	
32	Feeling bearings of connecting rod	Fracture of radius.	
33	Uncoupling waggons to get one in position for bucket.	Fatal.	
34	Coupling	Loss of part of left thumb.	
35	Removing locomotive crane from engine shed.	Contusion of head and back.	
36	Painting girder	Contusion of leg, arm, and right groin.	
37	Assisting to get waggon on the metals, when engine struck it.	Contusion of right shoulder.	
38	Jumping off waggon	Contusion of hip.	
39	Riding on step of small shunting engine	Fracture of rib.	
40	Backing engine into shed	Contusion of shoulder and ribs	The pillar was about 10 ins. from the side of locomotive cab.
41	Driving engine	Contusion of foot and sprain of ankle.	The other side of the prop projected from the side of the foot-plate, where it lay, and caught against a truck on the next line.
42	Trying to get on engine	Fatal.	
43	Coupling waggons	Severe contusion of foot.	
44	Crossing railway line	Contusions and loss of left fore-finger.	The engine was going very slowly and injured person apparently did not see it when he attempted to cross the line.
45	Kneeling on railway, examining a water grating close to a waggon.	Fatal	A waggon was shunted off the main line on to the siding, and struck the deceased.
46	Obtaining tools on the engine	Laceration of head.	
47	Loading a ship	Fracture of ribs and injury to lung.	
48	Crossing betwen waggons	Contusion of hips.	
49	Cleaning road and working with his leg across the metals.	Fatal	
50	Mounting engine	Internal injuries.	
51	Running by the side of locomotive to turn points.	Fatal	
52	Looking after loaded waggon.	Fatal.	
53	Shunting	Compound fracture of right thigh.	
54	Tipping slag from bogie	Contusion of head and back.	
55	Changing trucks	Contusion of foot.	
56	Riding on bogie	Lacerations.	

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Accidents due to Locomotives registered

No.	Industry	Injured Person. Occupation.	Sex. (M. or F.)	Age.	Whether employed as Child, Young Person, or Adult.	Accident. Date.	Causation.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
						1900.	
57	Dock	Locomotive guard.	M.	33	Adult.. ..	September 1	Caught between buffers .. .. ..
58	Iron	Shunter	M.	25	Adult.. ..	September 2	Wheel of waggon passed over his toes ..
59	Warehouse	Porter	M.	51	Adult.. ..	September 3	Railway truck forced a large case off lorry.
60	Iron	Labourer.. ..	M.	19	Adult.. ..	September 3	Knocked down by locomotive .. ..
61	Iron	Shunter and stoker on locomotive.	M.	18	Adult.. ..	September 4	Caught between buffers .. .. ..
62	Iron and steel ..	Traffic foreman..	M.	45	Adult.. ..	September 4	Injured person's foot slipped during shunting operations.
63	Railway carriages..	Engine driver ..	M.	26	Adult.. ..	September 4	Fell off small yard engine on to metals ..
64	Shipbuilding.. ..	Rivetter	M.	50	Adult.. ..	September 4	Struck by locomotive .. ..
65	Iron and steel ..	Crane driver ..	M.	22	Adult.. ..	September 5	Caught between buffers .. .. ..
66	Iron and steel ..	Road cleaner ..	M.	68	Adult.. ..	September 5	Run over by waggons .. ..
67	Steel	Fireman	M.	20	Adult.. ..	September 7	Knocked off engine owing to being caught by cupola runner.
68	Warehouse	Station porter ..	M.	23	Adult.. ..	September 8	Door of carriage struck by moving train
69	Iron and steel ..	Slagger	M.	46	Adult.. ..	September 8	Jammed by piece of slag being removed by locomotive.
70	Iron and steel ..	Locomotive fireman.	M.	17	Young person	September 8	Chock slipped .. ..
71	Iron and steel ..	Locomotive fireman.	M.	17	Young person	September 10	Crushed between locomotive and wall of blast furnace dock.
72	Iron	Fireman	M.	31	Adult.. ..	September 10	Jammed between buffers of truck and bogie.
73	Engineering	Shunter	M.	26	Adult.. ..	September 10	Caught between buffers of yard locomotive and truck.
74	Dock	Labourer.. ..	M.	59	Adult.. ..	September 11	Knocked off plank owing to a waggon which was being shunted striking it.
75	Dock	Shunter	M.	42	Adult.. ..	September 12	Caught between buffers of waggons ..
76	Iron and steel ..	Locomotive stoker.	M.	18	Adult.. ..	September 14	Squeezed between iron ore barrow and waggon.
77	Warehouse	Loader	M.	27	Adult.. ..	September 14	Locomotive started suddenly .. ..
78	Shipbuilding.. ..	Locomotive fireman.	M.	21	Adult.. ..	September 17	Jammed between truck and locomotive.
79	Dock	Lurryman ..	M.	28	Adult.. ..	September 17	Waggon missed points and was derailed, knocking a horse on injured person.
80	Iron	Road cleaner ..	M.	60	Adult.. ..	September 20	Knocked down by locomotive .. ..
81	Iron and steel ..	Labourer.. ..	M.	65	Adult.. ..	September 22	Knocked down by truck .. .. ..
82	Iron and steel ..	Platelayer ..	M.	45	Adult.. ..	September 24	Knocked down by train .. .. ..
83	Dock	Rope-runner or shunter.	M.	30	Adult.. ..	September 24	Fell on rails and was run over .. ..
84	Carriages	Labourer.. ..	M.	28	Adult.. ..	September 25	Door of waggon fell .. ..
85	Dock	Police constable	M.	45	Adult.. ..	September 25	Knocked down by train coming out of docks.
86	Iron and steel ..	Locomotive fireman.	M.	25	Adult.. ..	September 28	Fell from engine .. ..
87	Steel	Vesselman ..	M.	31	Adult.. ..	September 29	Caught between buffers of locomotive and ladle carriage.
88	Iron and steel ..	Locomotive sander.	M.	18	Adult.. ..	September 29	Caught between tender and locomotive.
89	Dock construction ..	Labourer.. ..	M.	16	Young person	October 2 ..	Struck by locomotive .. ..
90	Iron	Brakesman ..	M.	22	Adult.. ..	October 3 ..	Run over by waggon .. ..

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from 1st July to 31st December, 1900—*continued.*

No.	ACCIDENT.		REMARKS.
	Precise employment of injured person at time of accident. (8)	Nature and extent of injury. (9)	(10)
57	Coupling waggons	Contusion of hand.	
58	Standing with one foot on the rail uncoupling waggons.	Severe contusions of right foot.	
59	Standing beside lorry	Contusion of legs.	
60	Crossing line	Fatal.	
61	Uncoupling waggons	Laceration and contusion of finger of left hand.	Injured person's hand was too far up the coupling stick.
62	Putting down brake of waggon	Contusions of knees and hands.	
63	Driving engine	Contusions of right knee and thigh.	
64	Going to work	Contusion of side.	
65	Coupling trucks	Contusion of fingers of left hand.	
66	Cleaning the road	Fatal	It is thought the deceased was attempting to remove his barrow clear of the train.
67	Standing on locomotive	Contusion of hip.	
68	Cleaning carriage window	Contusion of fingers of left hand.	
69	Assisting at removal of piece of slag ..	Contusion of foot.	
70	Chocking waggon	Laceration of thumb	
71	Mounting engine	Contusions of body and lacerations of face.	
72	Coupling waggons	Fatal.	
73	Shunting	Contusion of leg.	
74	Stacking rails	Laceration of chin.	
75	Shunting waggons	Fatal.	
76	Coupling waggons	Contusion of back.	
77	Loading a waggon with iron	Severe laceration of thumb.	
78	Firing locomotive	Contusion of legs.	
79	Holding horse's head whilst train was passing.	Fracture of leg.	
80	Crossing line	Fatal.	
81	Labouring at tip	Laceration of head.	
82	Repairing the railway	Loss of left hand except thumb ..	The locomotive was at rear of train and there was no brakesman on the advancing waggons.
83	Shunting—riding on buffers	Fatal.	
84	Fastening door of waggon	Contusion of leg and ankle	The waggon was struck by some others which were shunted by a locomotive.
85	Recording number of waggons on an incoming train.	Contusion of shoulder and hip.	
86	Getting down from engine	Sprain of ankle.	
87	Shunting ladle carriage	Contusion of fingers.	
88	Attending to locomotive	Contusion of legs.	
89	Sitting on rails at supper	Dislocation of shoulder.	
90	Walking between rails	Fatal.	

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Accidents due to Locomotives registered

No.	Industry.	Injured Person.				Accident.	
		Occupation.	Sex. (M. or F.)	Age.	Whether employed as Child, Young Person, or Adult.	Date.	Causation.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
91	Dock	Shunter	M.	26	Adult.. ..	1900. October 6 ..	Dummy controlling a pair of trailing points (through which a train was passing) turned over when the last waggon had run through and fell on injured person.
92	Engineering	Labourer ..	M.	27	Adult.. ..	October 8 ..	Caught between locomotive and a trestle
93	Iron and steel ..	Labourer.. ..	M.	75	Adult... ..	October 10 ..	Knocked down by locomotive .. ..
94	Iron	Labourer ..	M.	65	Adult.. ..	October 10 ..	Knocked down by waggon .. .. ..
95	Engineering	Labourer ..	M.	36	Adult.. ..	October 11 ..	Crushed between cart (struck by a locomotive) and a heap of coal.
96	Iron	Slag tipper ..	M.	50	Adult.. ..	October 12 ..	Caught between buffers .. . ..
97	Gas	Boiler scurfer ..	M.	17	Young person	October 15 ..	Caught by train of coke waggons .. ..
98	Iron	Moulder	M.	19	Adult.. ..	October 15 ..	Fell under wheels of locomotive .. ..
99	Warehouse	Assistant brakesman.	M.	20	Adult.. ..	October 15 ..	Caught between buffers of trucks . ..
100	Steel	Labourer.. ..	M.	50	Adult.. ..	October 15 ..	Locomotive struck crane which swung round.
101	Warehouse	Caster	M.	38	Adult.. ..	October 15 ..	Run over by locomotive .. .. ..
101A	Iron	Locomotive fireman.	M.	30	Adult.. ..	October 17 ..	Caught between buffers of engine and truck.
103	Dock	Fireman	M.	59	Adult.. ..	October 18 ..	Struck by locomotive .. ..
104	Iron	Shunter	M.	19	Adult.. ..	October 20 ...	Caught between buffers of engine and truck.
105	Dock	Porter	M.	48	Adult.. ..	October 20 ..	Knocked down by waggon .. .. ..
106	Engineering	Sandman.. ..	M.	26	Adult.. ..	October 21 ..	Crane handle struck by cab of locomotive.
107	Steel	Locomotive fireman.	M.	22	Adult.. ..	October 22 ..	Struck by axle box .. ..
108	Iron and steel .	Locomotive fireman.	M.	20	Adult.. ..	October 24 ..	Caught between engine and trucks ..
109	Dock	Caller-off.. ..	M.	39	Adult.. ..	October 25 ..	Truck was struck by waggons being shunted, causing a heavy case to fall upon injured person.
110	Soap	Goods porter ..	M.	19	Adult.. ..	October 25 ..	Run over by waggons .. ..
111	Engineering	Waggon maker..	M.	62	Adult.. ..	October 25 ..	Caught by waggon being shunted .. ..
112	Engineering	Locomotive fireman.	M.	25	Adult.. ..	October 26 ..	Run over by waggons .. ..
113	Steel	Labourer.. ..	M.	58	Adult.. ..	October 27 ..	Knocked down by locomotive .. ..
114	Iron smelting ..	Cleaner and shunter.	M.	38	Adult.. ..	October 27 ..	Slag bogie passed over his foot .. ..
115	Iron	Locomotive fireman.	M.	27	Adult.. ..	October 28 ..	Caught between engine and trucks ..
116	Dock	Teemer	M.	31	Adult.. ..	October 29 ..	Caught between buffers owing to hand slipping along shunting stick.
117	Steel	Close annealer ..	M.	34	Adult.. ..	October 31 ..	Crushed between buffers .. .. ..
118	Iron	Locomotive stoker.	M.	25	Adult.. ..	October 31 ..	Struck by patent brake on waggon ..
119	Steel	Brakesman ..	M.	30	Adult.. ..	November 1	Crushed between locomotive and shaft alongside rails.
120	Dock	Brakesman ..	M.	34	Adult.. ..	November 2	Crushed between waggons which came off the line owing to points not being quite adjusted.
121	Iron and steel ..	Foreman coker..	M.	36	Adult.. ..	November 2	Run over by trucks .. ..

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from 1st July to 31st December, 1900—*continued.*

No.	ACCIDENT.		REMARKS.
	Precise employment of injured person at time of accident. (8)	Nature and extent of injury. (9)	(10)
91	Turning points	Contusion of toe.	
92	Shunting waggons	Sprain of foot.	
93	Walking by side of rails	Fatal.	
94	Passing between waggons	Slight contusion of shoulder	The engine was moving slowly at the time.
95	Loading cart	Contusion of leg.	
96	Coupling waggon and locomotive	Laceration of face.	
97	Crossing incline	Fatal	Deceased was not seen near the incline by the pointsman before the train passed.
98	Getting off truck	Fracture of thigh.	
99	Shunting trucks	Contusion of chest.	
100	Putting a bracket on a steel ladle	Contusion of back.	
101	Hooking bogie to engine	Contusion of foot	Driver of locomotive started before receiving notice.
102	Coupling truck to engine	Loss of part of left hand.	It was not possible to use coupling sticks, the buffers not providing a point for leverage.
103	Shunting trucks	Loss of left foot.	
104	Uncoupling	Contusion of fingers of left hand.	
105	Crossing the rails	Badly shaken.	
106	Holding crane handle	Fracture of arm.	
107	Uncoupling waggons	Contusion of back.	
108	Coupling trucks to engine	Contusion of thigh.	
109	Loading goods in truck	Contusion of both legs.	
110	Loading waggons	Fatal	Injured person attempted to get in moving waggon and fell between two of the waggons.
111	Taking a barrow out of the way of waggon	Fracture of thigh.	
112	Shunting	Fatal.	
113	Crossing railway lines	Laceration of foot.	
114	Shunting	Contusion of foot.	
115	Coupling trucks to engine	Severe laceration of thumb	Injured person used a coupling stick, but held it too short.
116	Coupling waggons	Laceration of hand.	
117	Fastening tarpaulin slings on a truck	Fatal.	
118	Standing on locomotive	Contusion of leg.	
119	Sitting on locomotive	Severe contusion of feet.	
120	Riding on buffers during shunting operations	Contusions.	
121	Shunting	Fatal.	

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Accidents due to Locomotives registered

No.	Industry.	Injured Person.				Accident.	
		Occupation.	Sex. (M. or F.)	Age.	Whether employed as Child, Young Person, or Adult.	Date.	Causation.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
122	Iron	Locomotive fireman.	M.	22	Adult.. ..	1900. November 3	Caught between buffers of trucks.. ..
123	Engineering	Locomotive fireman.	M.	53	Adult.. ..	November 5	Hand caught between guard and sprag ..
124	Iron	Locomotive brakesman.	M.	26	Adult.. ..	November 5	Knocked down by locomotive .. ..
125	Gas	Labourer ..	M.	30	Adult.. ..	November 5	Struck by locomotive .. ..
126	Steel	Labourer and stoker.	M.	21	Adult.. ..	November 6	Caught between buffers .. .. ..
127	Extraction of metal	Message boy ..	M.	13	Young person	November 7	Run over by locomotive and waggons ..
128	Dock	Labourer ..	M.	40	Adult.. ..	November 8	Knocked down by locomotive .. ..
129	Dock	Labourer ..	M.	36	Adult.. ..	November 9	Crushed between buffers .. .. ..
130	Gas	Coke waggon emptier.	M.	36	Adult.. ..	November 11	Foot came in contact with wheel .. ..
131	Steel	Locomotive fireman.	M.	22	Adult.. ..	November 12	Jumped from moving locomotive .. ..
132	Iron and steel ..	Night traffic foreman.	M.	41	Adult.. ..	November 13	Caught by waggons on junction road ..
133	Steel	Locomotive fireman.	M.	21	Adult.. ..	November 13	Crushed between truck and bogie ..
134	Iron and steel ..	Pitman	M.	20	Adult.. ..	November 14	Crushed between buffer plate and wall ..
135	Dock	Dock labourer ..	M.	32	Adult.. ..	November 15	Caught between buffers of trucks ..
136	Steel	Millwright ..	M.	43	Adult.. ..	November 15	Crushed between buffers .. .. ..
137	Warehouse	Porter	M.	23	Adult.. ..	November 16	Thrown out of truck by impact of another truck.
138	Iron and steel ..	Locomotive latchman.	M.	19	Adult.. ..	November 17	Crushed between buffers of engine and waggon.
139	Iron	Shunter	M.	25	Adult.. ..	November 17	Caught between buffers of waggons ..
140	Construction of building.	Rope runner ..	M.	28	Adult.. ..	November 19	Knocked down by train .. .. ..
141	Iron smelting ..	Rope runner ..	M.	19	Adult.. ..	November 20	Crushed between locomotive and electric light poles.
142	Steel	Locomotive fireman.	M.	19	Adult.. ..	November 21	Caught between buffers of trucks.. ..
143	Wharf	Teemer	M.	26	Adult.. ..	November 21	Knocked down by locomotive .. ..
144	Iron and steel ..	Painter	M.	16	Young person	November 22	Crushed between buffers .. .. ..
145	Shipbuilding	Engine boy ..	M.	15	Young person	November 22	Slipped and was caught by waggon wheel
146	Dock	Teemer	M.	23	Adult.. ..	November 23	Rope by which locomotive was drawing trucks slipped and iron hook struck his wrist.
147	Engineering	Apprentice in fitter's shop.	M.	18	Adult.. ..	November 24	Locomotive struck truck he was attending
148	Iron	Locomotive fireman.	M.	23	Adult.. ..	November 24	Caught by bogie .. ..
149	Dock	Pilot shunter ..	M.	25	Adult.. ..	November 24	Collision of engine with rear of train ..
150	Iron and steel ..	Labourer.. ..	M.	17	Young person	November 26	Caught by locomotive crane.. .. ..
151	Engineering	Driller	M.	41	Adult.. ..	November 28	Ladder knocked down by locomotive ..
152	Steel	Locomotive fireman.	M.	18	Adult.. ..	November 29	Caught between buffers of locomotive and truck.
153	Steel	Locomotive fireman	M.	22	Adult.. ..	November 29	Caught by slag bogie .. ..
154	Iron	Traffic manager	M.	32	Adult.. ..	November 30	Slipped from buffer .. ..
155	Steel	Labourer.. ..	M.	21	Adult.. ..	November 30	Knocked down by locomotive .. ..
156	Brewing and malting	Fitter	M.	46	Adult.. ..	December 1	Knocked down by locomotive .. ..

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from 1st July to 31st December, 1900—*continued.*

No.	ACCIDENT.		REMARKS.
	Precise employment of injured person at time of accident. (8)	Nature and extent of injury. (9)	(10)
122	Coupling trucks	Laceration of finger	It was not possible to use coupling sticks, the buffers not providing a point for leverage.
123	Putting a sprag in wheel of waggon	Loss of finger of right hand.	
124	Removing slag from blast furnace	Fatal.	
125	Stepping in front of locomotive	Laceration of cheek.	
126	Proceeding to pull round curve	Contusion of abdominal muscles.	
127	Creeping under waggons	Fatal	Injured person had been cautioned to keep clear of the waggon way.
128	Cleaning the points on railway	Laceration of scalp.	
129	Writing while leaning on a buffer	Fatal.	
130	Getting on waggon attached to the locomotive.	Contusion of left heel	
131	About to lift a pair of points	Sprain of ankle.	
132	Standing on step of locomotive, superintending traffic.	Contusion of both thighs.	
133	Standing near the line, engaged in shunting operations.	Fatal.	
134	Riding on locomotive crane	Contusion of right foot.	
135	Pushing a loaded waggon along	Severe contusion of shoulder.	
136	Coupling	Contusion of hip and buttock.	
137	Loading goods on to truck	Slight laceration of scalp.	
138	Latching	Severe contusion of two fingers of left hand.	
139	Coupling waggons	Laceration of finger.	
140	Directing traffic	Fatal.	
141	Standing on the locomotive	Contusion of left hip.	
142	Coupling trucks	Contusion of fingers.	
143	Teeming coals into ship	Contusion of elbow.	
144	Letting go the brake on a waggon	Severe contusion of right hand.	
145	Coupling waggons	Contusion of ankle and shin.	
146	Assisting to bring some trucks to the coal hopper.	Contusion of wrist.	
147	Conveying goods into shop on a truck	Contusion of leg.	
148	Setting bogie into position with locomotive	Contusion of thumb.	
149	Standing on footplate	Contusion of thighs.	
150	Endeavouring to step on crane after turning the points.	Contusion of foot.	
151	Working in repairing shed	Contusion of foot.	
152	Sanding rails	Contusion of hand.	
153	Coupling slag bogies	Contusion of wrist and burns.	
154	Riding on buffer directing shunting operations.	Sprain of knee.	
155	Spragging wheel of crane near the line	Amputation of toes of right foot.	
156	Crossing the line in front of engine shed	Fracture of rib.	

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Accidents due to Locomotives Registered

No.	Industry. (1)	Injured Person. Occupation. (2)	Sex. (M. or F.) (3)	Age. (4)	Whether employed as Child, Young Person, or Adult. (5)	Accident. Date. (6)	Causation. (7)
						1900.	
157	Iron	Locomotive fireman	M.	23	Adult.. ..	December 3	Caught between engine and waggon ..
158	Warehouse	Porter	M.	28	Adult.. ..	December 4	Caught between buffers of waggons ..
159	Iron	Shunter	M.	23	Adult.. ..	December 6	By scotch which was being placed under locomotive wheel.
160	Iron and steel ..	Locomotive stoker.	M.	23	Adult.. ..	December 7	Caught between wheel of locomotive and splash board.
161	Iron	Railway guard..	M.	22	Adult.. ..	December 7	Fell from and was run over by waggon ..
162	Shipbuilding	Iron-shifter ..	M.	29	Adult.. ..	December 7	Struck by buffer of locomotive .. ..
163	Gas	Shunter	M.	18	Adult.. ..	December 7	Caught by wheel of bogie .. .. ..
164	Iron	Shunter	M.	18	Adult.. ..	December 8	Caught between waggons .. .. ..
165	Steel	Steam pipe coverer.	M.	45	Adult.. ..	December 10	Overhead crane wheel passed over his hand.
166	Chemicals	Bricklayer's labourer.	M.	22	Adult.. ..	December 12	Locomotive struck barrow he was wheeling and threw him down.
167	Iron	Fitter	M.	35	Adult.. ..	December 12	Escape of steam from locomotive .. ..
168	Machines	Furnaceman ..	M.	27	Adult.. ..	December 12	Crushed between waggons .. .. ..
169	Engineering	Greaser	M.	18	Adult.. ..	December 13	Caught by wire rope for hauling trucks..
170	Shipbuilding	Iron-shifter ..	M.	40	Adult.. ..	December 14	Steam crane ran over his foot .. ..
171	Iron	Labourer and stoker.	M.	26	Adult.. ..	December 15	Fell and was run over by locomotive ..
172	Iron	Engine driver ..	M.	22	Adult.. ..	December 18	Caught between buffers .. .. ..
173	Engineering	Fitter	M.	56	Adult.. ..	December 18	Steam from new engine that was being tested forced off the temporary blow-off pipe.
174	Engineering	Labourer.. ..	M.	28	Adult.. ..	December 18	Run over by waggon .. ..
175	Copper	Locomotive stoker.	M.	47	Adult.. ..	December 20	Caught by engine .. ..
176	Print, bleach and dye works.	Worker in dye house.	M.	16	Young person	December 20	Knocked down by engine .. .. ..
177	Warehouse	Caller off	M.	23	Adult.. ..	December 21	Caught between buffer and casting ..
178	Iron	Locomotive fireman.	M.	20	Adult.. ..	December 21	Caught between wall and locomotive ..
179	Iron	Locomotive fireman.	M.	18	Adult.. ..	December 24	Fell between engine and waggons ..

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from 1st July to 31st December, 1900—*continued.*

No.	ACCIDENT.		REMARKS.
	Precise employment of injured person at time of accident. (8)	Nature and extent of injury. (9)	(10)
157	Coupling waggons	Contusion of fingers.	
158	Covering a waggon	Laceration of hand.	
159	Placing scotch under wheel	Laceration of thumb.	
160	Cleaning wheel of locomotive..	Fracture of bone of left hand.	
161	Standing on buffer of waggon	Fatal.	
162	Coupling waggon to engine	Contusion of leg.	
163	Shifting points	Laceration of finger	Used his hand instead of a rod to adjust the points.
164	Shunting	Contusion of foot.	
165	Attending to steam pipes	Loss of right hand.	
166	Wheeling barrow across the line	Contusion of leg.	
167	Driving locomotive	Scalds of face and neck	The engine cover was torn off owing to contact with the jib of a hydraulic crane.
168	Wheeling a barrow of slag from the furnace across the line.	Contusion of body.	
169	Standing too near railway line	Contusion of leg.	
170	Assisting to rack bars	Fracture of left foot	The crane driver mistook the signal which was given him.
171	Standing on step of locomotive	Fracture of toes of left foot.	
172	Disengaging the locked springs of the buffers of two trucks.	Contusion of arm.	
173	Uncoupling tender from engine	Fracture of left leg	The temporary blow-off pipe had been insecurely fastened.
174	Coupling waggons	Contusion of toe.	
175	Attempting to sit on buffer of truck in front of engine and slipped off.	Fracture of left leg and laceration of scalp.	
176	Walking on railway lines	Fatal.	
177	Getting over a waggon	Contusion of foot.	
178	Shunting waggons	Contusion of sides.	
179	Shunting	Fracture of arm.	

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APPEN

Accidents reported by Certifying Surgeons as due to Flying of

No.	Industry.	Injured Person.				Accident.		
		Occupation.	Sex. (M. or F.)	Age	Whether employed as Child, Young Person, or Adult.	Date.	Causation.	
							Origin.	Same or other loom.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Cotton	Weaver	F.	26	Adult.. ..	1900. May 28 ..	.. ..	Same ..
2	Cotton	Weaver	F.	25	Adult.. ..	June 19 ..	Bottom plate of shuttle box became partly unscrewed.	Same ..
3	Worsted	Weaver	F.	45	Adult.. ..	June 25 ..	Heald cord broke	Adjoining..
4	Cotton	Weaver's helper	F.	13	Young person	June 27 ..	Heald broke	Adjoining..
5	Cotton	Weaver	F.	15	Young person	June 27 ..	.. ..	Same ..
6	Cotton	Weaver	F.	18	Adult.. ..	June 28 ..	Weight holding threads taut fell off.	Same ..
7	Wool	Weaver	F.	60	Adult.. ..	June 28 ..	Picker of loom broke ..	Adjoining..
8	Cotton	Weaver	F.	23	Adult.. ..	June 28 ..	.. ..	Adjoining..
9	Cotton	Weaver	F.	16	Young person	July 2 ..	Piece of waste in threads of warp.	Same ..
10	Cotton	Weaver	F.	39	Adult.. ..	July 2 ..	.. ..	Adjoining..
11	Cotton	Weaver	F.	48	Adult.. ..	July 5 ..	Loose end	Same ..
12	Jute	Weaver	F.	22	Adult.. ..	July 6 ..	.. ..	Adjoining..
13	Cotton	Weaver	F.	17	Young person	July 7 ..	Picker of loom broke ..	Same ..
14	Cotton	Weaver's helper	F.	13	Young person	July 16 ..	.. ..	Adjoining..
15	Cotton	Weaver	F.	41	Adult.. ..	July 18 ..	Loose ends	Adjoining..
16	Wool	Weaver	F.	26	Adult.. ..	July 23 ..	.. ..	Same ..
17	Flax	Weaver	F.	35	Adult.. ..	July 25 ..	.. ..	Same ..
18	Wool	Weaver	F.	30	Adult.. ..	July 30 ..	Pin of box swill broke causing swill to come off.	Adjoining..
19	Worsted	Trolley boy ..	M.	13	Young person	July 30 ..	.. ..	.. .. ..
20	Cotton	Loom tackler ..	M.	30	Adult.. ..	July 31 ..	.. ..	Adjoining..
21	Wool	Weaver	M.	38	Adult.. ..	July 31 ..	Dropped thread	Same ..
22	Cotton	Weaver	F.	21	Adult.. ..	August 1 ..	.. ..	Same ..
23	Cotton	Weaver	F.	16	Young person	August 16 ..	Defective tappet	Adjoining..
24	Cotton	Weaver	F.	32	Adult.. ..	August 22 ..	Broken end	Same ..
25	Cotton	Weaver	F.	18	Adult.. ..	August 23 ..	.. ..	Adjoining..
26	Worsted	Weaver	F.	21	Adult.. ..	August 28 ..	.. ..	Adjoining..
27	Cotton	Weaver	F.	33	Adult.. ..	August 30 ..	.. ..	Same ..
28	Cotton	Weaver	F.	20	Adult.. ..	August 31 ..	.. ..	Same ..
29	Wool	Weaver	M.	45	Adult.. ..	September 4	Treadle band broke	Same ..
30	Wool	Weaver	F.	47	Adult.. ..	September 7	.. ..	Same ..
31	Wool	Weaver	F.	18	Adult.. ..	September 21	.. ..	Same ..
32	Cotton	Weaver's helper	F.	15	Young person	September 21	Threads of warp broke ..	Adjoining..
33	Cotton	Weaver	F.	18	Adult.. ..	September 25	Lock stud for shuttle box worked loose.	Adjoining..
34	Cotton	Weaver	F.	30	Adult.. ..	September 27	.. ..	Adjoining..
35	Cotton	Weaver	F.	53	Adult.. ..	September 28	.. ..	Adjoining..
36	Cotton	Weaver	M.	35	Adult.. ..	September 29	Crank arm at box end worked loose.	Same ..

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DIX 20.

Shuttles registered from 1st July to 31st December, 1900.

No.	ACCIDENT.		REMARKS.		
	Precise employment of injured person at time of accident. (9)	Nature and extent of injury. (10)	Guard used. (11)	Speed of loom in picks per minute. (12)	Other. (13)
1	Weaving	Loss of sight of left eye	No	180	Firm agreed to pay injured person £115 and all expenses, and at subsequent prosecution were fined 1s. and 14s. costs.
2	Walking past loom	Incised wound on frontal bone	Yes	200	
3	Weaving	Contusion of lower lip and gums	Yes	168	
4	Threading shuttle while standing between two looms.	Contusion of right eye	Yes	134-136	
5	Weaving	Wound on left side of head	Defective	160	
6	Weaving	Contusion of left eye—vision unaffected.	Off at time of accident.	180	Occupier and foremen cautioned to keep a better look-out and to affix notices.
7	Weaving	Graze of cheek just below eye	Yes	90	
8	Stooping whilst weaving	Scalp wound	No	A little over 80.	
9	Weaving	Lower lip cut and a front tooth knocked out.	Yes	136	
10	Drawing twist in	Contusion of right elbow with neuritis of ulna nerve.	Yes	186	
11	Stooping to lift up a cop	Contusion of left eyeball	Yes	214	
12	Kneeling on floor	Wound of neck behind right ear	Yes	125	Injured person would not have been wounded had she no been stooping.
13	Weaving	Loss of left eye	Yes	200	
14	Stooping while drawing the yarn	Contusion of inner side of right eye	Yes	134-136	
15	Weaving	Contusion of left eyelid	Yes	135	
16	Weaving	Laceration of left temple	Off at time of accident.	78	H.M. Inspector remarked that these slow woollen looms have not hitherto been considered dangerous, but all will soon be guarded throughout the district.
17	Weaving	Laceration of left forearm	Yes	160	
18	Weaving	Contusion of hand	No	52	
19	Unloading trolley	Contusion of left side of head	No	42	
20	Shedding a loom which was out of order	Laceration of eyelid	Off at time of accident.	160	
21	Stopping loom	Laceration of wrist	Yes	72	
22	Weaving	Contusion of left side of head	Yes	200	
23	Weaving	Lip cut and front teeth knocked out	Yes	170-180	
24	Bending over loom	Contusion of right side of face	Yes	135	
25	Gathering up end of piece	Contusion of right cheek	Yes	140-150	Injured person had her face on a level with the cloth at time of accident.
26	Weaving	Laceration of scalp	Affixed since accident.	128	Firm prosecuted.
27	Weaving	Laceration of chin	Yes	148	
28	Weaving	Loss of eye	Yes	196	
29	Standing close to loom	Laceration of finger	No	77	The shuttles being large and heavy are rarely thrown upwards.
30	Weaving	Contusion of left temple	Defective	120	A good guard was afterwards fixed.
31	Weaving	Laceration of mouth	Yes	100	
32	Sweeping between looms	Laceration of elbow	Yes	180	
33	Weaving	Slight cut on face near right eye	Yes	140	
34	Starting loom	Loss of right eye	Yes	170	
35	Weaving	Loss of left eye	Yes	160	Injured person was of small stature and hence was struck in face.
36	Weaving	Rupture of blood vessel of arm	Yes	190	

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Accidents due to Flying of Shuttles registered

No.	Industry. (1)	Injured Person. Occupation. (2)	Sex. (M. or F.) (3)	Age. (4)	Whether employed as Child, Young Person, or Adult. (5)	Accident. Date. (6)	Causation. Origin. (7)	Same or other loom. (8)
						1900.		
37	Cotton	Weaver	F.	26	Adult.. ..	October 1 ..	Top of cop was necked ..	Same ..
38	Cotton	Weaver	F.	17	Young person	October 4 ..	.. ..	.. .. ..
39	Wool	Weaver	F.	22	Adult.. ..	October 5 ..	.. ..	Adjoining..
40	Cotton	Weaver's helper	F.	17	Young person	October 15 ..	.. ..	Same ..
41	Flax	Weaver	F.	20	Adult.. ..	October 18 ..	.. ..	Adjoining..
42	Flax	Weaver	F.	15	Young person	October 20 ..	Broken end	Adjoining..
43	Flax	Weaver	F.	30	Adult.. ..	October 22 ..	.. ..	.. .. ..
44	Flax	Weaver	F.	19	Adult.. ..	October 22 ..	.. ..	Adjoining..
45	Cotton	Weaver	F.	18	Adult.. ..	October 26 ..	.. ..	Adjoining..
46	Cotton	Weaver	M.	21	Adult.. ..	October 29 ..	Threads of warp broke ..	Same ..
47	Flax	Weaver	F.	21	Adult.. ..	October 30 ..	.. ..	Adjoining..
48	Worsted	Weaver	F.	40	Adult.. ..	November 2	Defective picker	Same ..
49	Cotton	Weaver	F.	26	Adult.. ..	November 5	Picking strap broke	Same ..
50	Flax	Weaver	F.	26	Adult.. ..	November 5	.. ..	Same ..
51	Cotton	Weaver	F.	34	Adult.. ..	November 8	Defective picker and broken twist.	Adjoining..
52	Cotton	Weaver	F.	38	Adult.. ..	November 8	.. ..	Adjoining..
53	Cotton	Weaver	F.	23	Adult.. ..	November 10	Picking ball became loose ..	Same ..
54	Cotton	Weaver	F.	15	Young person	November 12	.. ..	Same ..
55	Wool	Weaver	M.	40	Adult.. ..	November 14	.. ..	Same ..
56	Jute	Weaver	F.	15	Young person	November 14	Jute root in yarn	Adjoining..
57	Cotton	Weaver	F.	30	Adult.. ..	November 16	Shuttle box, just fixed on loom, was not quite in position.	Same ..
58	Cotton	Weaver	F.	39	Adult.. ..	November 20	.. ..	Same ..
59	Worsted	Weaver	M.	—	Adult.. ..	November 21	.. ..	Adjoining..
60	Cotton	Weaver	F.	34	Adult.. ..	November 23	Screw at end of shuttle worked loose.	Same ..
61	Worsted	Weaver	F.	23	Adult.. ..	November 24	Buffer strap broke	Adjoining..
62	Cotton	Weaver	F.	22	Adult.. ..	November 29	.. ..	Adjoining..
63	Cotton	Tenter	F.	13	Young person	December 1..	.. ..	Adjoining..
64	Cotton	Weaver's helper	F.	15	Young person	December 12	Loom was "slack gaited" ..	Adjoining..
65	Cotton	Weaver	F.	20	Adult.. ..	December 12	New warp—threads were not quite taut.	Same ..
66	Cotton	Weaver's tenter	M.	13	Young person	December 12	Thread broke	Adjoining..
67	Flax	Weaver	F.	50	Adult.. ..	December 12	Loss of pin from shuttle box.	Adjoining..
68	Worsted	Weaver	F.	—	Adult.. ..	December 14	.. ..	Adjoining..
69	Cotton	Weaver	F.	39	Adult.. ..	December 21	Broken picker at one end of loom, and too tight picking band at other end.	Same ..

There were also four accidents

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from 1st July to 31st December, 1900—*continued.*

No.	ACCIDENT.		REMARKS.		
	Precise employment of injured person at time of accident. (9)	Nature and extent of injury. (10)	Guard used. (11)	Speed of loom in picks per minute. (12)	Other. (13)
37	Weaving	Contusion of corner of eye	Yes	170	The guards were placed too high on the reed cap.
38	Passing down broad alley in shed	Contusion of forehead and concussion.	No	152	
39	Standing at side of loom	Contusion of right side of scalp	Yes	84	
40	Starting loom	Contusion of face under left eye	Yes	180	
41	Weaving	Contusion of thorax	Yes	170	There was in addition to the guard a wire screen at end of loom.
42	Filling a shuttle	Severe contusion of forehead	No	140	
43	Weaving	Incised wound of left temple	No	93	H.M. Inspector remarked that these slow damask looms, with harness mounting, had hitherto been considered safe without guards, but in view of this accident he had requested firm to procure a few protectors with a view to their general adoption.
44	Weaving	Laceration of nose	No	160	There was in addition to the guard a wire screen at end of loom.
45	Weaving	Laceration of fore-arm	Yes	180	
46	Attempting to catch shuttle	Laceration of finger	Yes	184	
47	Weaving	Laceration of face	Off at time of accident.	150	
48	Weaving	Contusion of nose	Yes	90	
49	Shuttling a cop	Incised wound of forehead	Yes	140	
50	Weaving	Contusion of cheek	Yes	140	
51	Standing at loom drawing ends in	Concussion of the brain	Yes	170	
52	Passing loom	Contusion of nose	Yes	160	
53	Weaving	Contusion of cheek	Yes	188	
54	Weaving	Probable loss of sight of right eye	Yes	186–190	The warp was newly stretched, and only one pick was wefted, only one-third of the warp was held down by the weft, and the first two picks being thrown by power the belt was jerked off the fast pulley and the whole machine shaken.
55	Standing at end of loom	Graze of temple	Yes	90–100	Screens recommended.
56	Weaving	Contusion of face	Yes	84	The loom was afterwards dismantled.
57	Standing near loom whilst shuttle box was being fixed.	Laceration of forehead	Yes	170	
58	Stooping to pick up a cop	Contusion of nose	Yes	180	
59	Turning his loom back	Contusion of right elbow	Off at time of accident.	90	
60	Weaving	Laceration of mouth	Yes	192	
61	Weaving	Contusion of cheek	Yes	120	
62	Weaving	Nerve of arm injured slightly	No	170	
63	Passing loom	Contusion of face below right eye	Yes	120	
64	Stooping whilst weaving	Contusion of eyelid	Yes	196	
65	Stooping whilst weaving	Loss of right eye	Yes	140	
66	Examining the cloth on loom	Laceration of upper lid of right eye	Yes	183	
67	Weaving	Contusion of forehead	Yes	160	
68	Weaving	Contusion of face	Yes	96	
69	Weaving	Laceration of head	Yes	190	

due to other action of shuttles.

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APPEN

Accidents reported to Inspectors as due to Electric

No.	Industry.	Injured Person.				Accident.	
		Occupation.	Sex. (M. or F.)	Age.	Whether employed as Child, Young Person, or Adult.	Date.	Causation.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Shipbuilding	Electrician ..	M.	21	Adult.. ..	1900. June 28 ..	Arm caught against fuse, causing short circuit and flash.
2	Shipbuilding	Plater	M.	37	Adult.. ..	July 17 ..	Electric flash caused by wire breaking ..
3	Locomotives	Electric lamp trimmer.	M.	26	Adult.. ..	July 22 ..	.. ..
4	Shipbuilding	Apprentice electrician.	M.	15	Young person	July 30 ..	.. ..
5	Generation of electricity.	Dynamo attendant.	M.	44	Adult.. ..	September 15	.. ..
6	Electrical engineering.	Apprentice electrician.	M.	21	Adult.. ..	September 19	Flash from motor switch .. .. ..
7	Oilcloth	Mechanic ..	M.	43	Adult.. ..	September 24	Flash from bar .. ..
8	Engineering	Tester	M.	25	Adult.. ..	September 28	.. ..
9	Railway carriages ..	Labourer.. ..	M.	37	Adult.. ..	September 28	Spark from electric fuse .. .. ..
10	Shipbuilding	Mechanic.. ..	M.	45	Adult.. ..	October 2 ..	.. ..
11	Engineering	Electrician ..	M.	30	Adult.. ..	October 8 ..	.. ..
12	Machines	Wireman.. ..	M.	26	Adult.. ..	October 12 ..	Glare of electric light .. ..
13	Machines	Wireman.. ..	M.	22	Adult.. ..	October 13 ..	Wire fused .. ..
14	Engineering	Fitter	M.	38	Adult.. ..	October 28 ..	Wire fused .. ..
15	Steel	Turner	M.	24	Adult.. ..	October 31 ..	Wire fused .. ..
16	Ordnance	Turner	M.	28	Adult.. ..	November 8	Explosion of an electric hand-lamp ..
17	Machines	Labourer.. ..	M.	28	Adult.. ..	November 8	Flash from a small motor .. .. ..
18	Steel	Turner	M.	28	Adult.. ..	November 9	Steel foot-rule caught switch-box .. ..
19	Iron and steel ..	Crane driver ..	M.	32	Adult.. ..	November 10	Contact of key with a wire .. .. ..
20	Generation of electricity.	Electrician in charge.	M.	25	Adult.. ..	November 12	Contact with a "live" terminal .. ..
21	Engineering	Labourer.. ..	M.	18	Adult.. ..	November 29	Wire fused, causing short circuit .. ..
22	Generation of electricity.	Cleaner	M.	19	Adult.. ..	November 30	Oil-can caught the bed of dynamo ..
23	Shipbuilding	Apprentice engineer.	M.	18	Adult.. ..	December 14	.. ..
24	Engineering	Electrician ..	M.	33	Adult.. ..	December 17	.. ..
25	Engineering	Labourer.. ..	M.	38	Adult.. ..	December 19	.. ..
26	Iron and steel ..	Labourer.. ..	M.	35	Adult.. ..	December 19	Contact of an iron rod with an electric wire for lighting purposes.

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DIX 21.

Shock registered from 1st July to 31st December, 1900.

No.	ACCIDENT.		REMARKS.
	Precise employment of injured person at time of accident. (8)	Nature and extent of injury. (9)	(10)
1	Fixing fuse	Eyeball burnt.	
2	Working at rollers	Hand burnt.	
3	Switching on electric light	Eyes injured.	
4	Fixing electric fittings	Hand burnt.	
5	Adjusting one of the carbons below the brush of a motor generator.	Both hands burnt, and shock.	
6	Handling the switch	Hand burnt.	
7	Behind a switchboard sawing a bar; he accidentally touched another bar.	Face and eyes scorched.	
8	Connecting	Hand burnt.	
9	Working at capstan rope	Eye injured.	
10	Working at watertight door	Fingers burnt.	
11	Working at two electric wires	Both hands burnt.	
12	Fixing fuse	Eyes injured.	
13	Fixing fuse	Hand and wrist burnt.	
14	Using portable electric light	Wrist burnt.	
15	Placing a plug attached to electric hand-lamp in a wall socket.	Eyes burnt.	
16	Looking up gun tube	Face and hand burnt	Explosion due to defective cable.
17	Putting oil ring in	Neck burnt.	
18	Stopping his lathe	Fingers burnt.	
19	Fixing fuse	Hand slightly burnt.	
20	Reconnecting one of the circuits	Fatal.	
21	Putting in the plug for electric lamp	Fingers burnt.	
22	Removing oil-can from dynamo	Forearm burnt,	
23	Coupling wire to switchboard	Face and hands burnt.	
24	Cleaning lamp	Forehead bruised, and shock.	
25	Moving lamp	Finger burnt.	
26	Shifting a plank with a long iron rod	Rib fractured	The electric currents in this factory were all at low pressure, the voltage being 250, alternating. The wire was about 28 feet from the ground.

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APPEN

Accidents reported by Certifying Surgeons as due

No.	Industry.	Injured Person.				Accident.	
		Occupation.	Sex. (M. or F.)	Age.	Whether employed as Child, Young Person, or Adult.	Date.	Causation.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Warehouse	Boiler cleaner ..	M.	14	Young person	1900. May 30 ..	Hand caught on grindstone .. .. ..
2	Machines	Grinder	M.	32	Adult.. ..	June 5 ..	Tool became fixed between grindstone and rest.
3	Blacksmiths	Labourer.. ..	M.	19	Adult.. ..	June 14 ..	Thumb caught between grindstone and piece of iron.
4	Engineering	Machinist ..	M.	18	Adult.. ..	June 16 ..	Small piece of steel flew off .. .. ..
5	Engineering	Grinder	M.	35	Adult.. ..	June 20 ..	Finger caught by article being ground ..
6	Spindles	Spindle turner ..	M.	20	Adult.. ..	June 20 ..	Hand caught by grindstone owing to rest going back.
7	Hats	Joiner's apprentice.	M.	15	Young person	June 21 ..	Tool became fixed between grindstone and rest.
8	Boilers	Hammerman ..	M.	58	Adult.. ..	June 21 ..	Apron and trousers caught and twisted round the spindle of grindstone.
9	Engineering	Grinder	M.	21	Adult.. ..	June 22 ..	The mould board slipped off the horse as he was pushing it to the grindstone.
10	Engineering	Driller	M.	21	Adult.. ..	June 22 ..	Finger caught by tool .. ..
11	Docks	Bricklayer ..	M.	38	Adult.. ..	June 25 ..	Hand drawn between grindstone and rest
12	Steel	Machine file grinder.	M.	19	Adult.. ..	June 25 ..	File flew, being caught by grindstone ..
13	Engineering	Apprentice fitter	M.	14	Young person	June 25 ..	Hand caught between grindstone and tool
14	Cycles	Machinist ..	M.	21	Adult.. ..	June 27 ..	Hand caught on grindstone .. .. ..
15	Screws	Fitter	M.	41	Adult.. ..	June 28 ..	Fingers crushed between grindstone and rest.
16	Machines	Iron dresser ..	M.	22	Adult.. ..	June 28 ..	Casting caught driving strap of grindstone.
17	Engineering	Wheel cutter ..	M.	23	Adult.. ..	June 28 ..	Small piece of metal flew from tool ..
18	Steel	File grinder ..	M.	21	Adult.. ..	June 29 ..	Finger caught on grindstone .. ..
19	Spindles	File grinder ..	M.	35	Adult.. ..	June 30 ..	File broke .. ..
20	Nuts and bolts ..	Nut frazer ..	M.	15	Young person	June 30 ..	Hand caught on grindstone .. .. ..
21	Engineering	Stricker	M.	22	Adult.. ..	July 3 ..	Hand caught by grindstone .. .. ..
22	Tobacco	Tobacco worker	M.	28	Adult.. ..	July 3 ..	Finger caught on grindstone .. ..
23	Engineering	Apprentice engineer.	M.	16	Young person	July 3.. ..	Hand slipped on grindstone .. .. ..
24	Telegraph apparatus	Machine boy ..	M.	15	Young person	July 4 ..	Apron caught by spindle of grindstone ..
25	Gas	Fitter	M.	17	Young person	July 5 ..	Fingers drawn between grindstone and frame.
26	Corn mill	Miller	M.	18	Adult.. ..	July 5 ..	Finger caught between grindstone and crossbar.
27	Machines	Grinder	M.	24	Adult.. ..	July 9 ..	Injured person was thrown over a grindstone, through putting his foot on it.
28	Engineering	Stationary engineman.	M.	25	Adult.. ..	July 9 ..	Grit from grindstone .. ..
29	Engineering	Iron turner ..	M.	22	Adult.. ..	July 9.. ..	Tool slipped, hand thrown against grindstone.
30	Engineering	Labourer.. ..	M.	22	Adult.. ..	July 10 ..	His foot slipped and he fell upon the grindstone.
31	Engineering	Improver to mechanic.	M.	18	Adult.. ..	July 11 ..	Chisel caught in grindstone .. .. ..
32	Shipbuilding	Caulker	M.	29	Adult.. ..	July 11 ..	Spark from grindstone .. .. ..
33	Steel	Armour plate planer.	M.	27	Adult.. ..	July 12 ..	Caught between grindstone and rest ..
34	Engineering	Iron grinder ..	M.	21	Adult.. ..	July 13 ..	Caught between grindstone and rest—tool slipped.
35	Engineering	Labourer.. ..	M.	18	Adult.. ..	July 13 ..	Hand caught between grindstone and rest—tool slipped.

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DIX 22.

to Grindstones registered from 1st July to 31st December, 1900.

No.	ACCIDENT.		REMARKS
	Precise employment of injured person at time of accident. (8)	Nature and extent of injury. (9)	(10)
1	Grinding a tool	Right hand contused and lacerated.	
2	Turning up grindstone	Wrist sprained.	
3	Grinding iron	Part of left thumb amputated	The iron was not held tight enough. Firm requested to keep surface of stone even, and to attach hinged rest.
4	Grinding a tool	Eye inflamed.	
5	Grinding	Finger contused.	
6	Grinding a tool	Fingers lacerated.	
7	Grinding a tool	Right thumb lacerated	The occupiers have promised to affix a safety rest.
8	Grinding flattener on side of grindstone	Scrotum lacerated and thigh contused.	
9	Grinding a ploughshare	Fingers of left hand lacerated	Moveable rests recommended by H.M. Inspector, but the men say they cannot use them for this work.
10	Grinding a tool	Finger of left-hand contused.	
11	Grinding a chisel on wrong side of grindstone	Left hand severely lacerated.	
12	Filling tray of file-grinding machine with files.	Part of right thumb amputated.	
13	Grinding a tool	Finger lacerated	Moveable rest to be provided.
14	Grinding a tool	Left middle finger lacerated	Probably due to irregularity in the surface of the stone.
15	Grinding a tool	Left hand lacerated.	
16	Grinding a casting	Fingers lacerated	The casting was thrown down, and man's hand caught the outside of the rest.
17	Grinding a tool	Eye slightly injured.	
18	Dressing grindstone	Fingers of left hand lacerated.	
19	Grinding a file	Right hand lacerated.	
20	Grinding	Thumb lacerated	Moveable rests recommended by H.M. Inspector.
21	Turning stone down with a bar of iron	Back of right hand lacerated	
22	Starting grindstone	First finger of left-hand lacerated	Grindstone, moved by gas engine, started before the injured person was ready to use it.
23	Grinding a tool	Point of second finger taken off.	
24	Speaking to another person working at the grindstone.	Right thigh contused	A guard has been placed over the spindle since the accident.
25	Grinding a tool	Fingers of right hand contused.	
26	Sharpening a chisel	Part of right hand amputated	Chisel slipped, and when recovering it injured person's finger was caught. Grindstone had a fixed rest. A moveable rest is to be provided.
27	Grinding a casting	Arms and body contused.	
28	Grinding a tool	Eye inflamed.	
29	Grinding a tool	Hand lacerated.	
30	Preparing to clean grindstone box	Right arm contused.	
31	Sharpening chisel	Part of left index-finger amputated	Grindstone had a fixed guard in front, leaving about ¼ inch space.
32	Grinding a tool	Left eye severely injured.	
33	Grinding a washer	Left hand lacerated	Moveable rests recommended by H.M. Inspector.
34	Turning up a grindstone	Forearm lacerated.	
35	Grinding a tool	Left middle finger lacerated	Moveable rests recommended by H.M Inspector.

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Accidents due to Grindstones registered

No.	Industry.	Injured Person.				Accident.	
		Occupation.	Sex. (M. or F.)	Age.	Whether employed as Child, Young Person, or Adult.	Date.	Causation.
	(1)	(2)	(3)	4)	(5)	(6)	(7)
36	Carriages, &c. ..	Labourer.. ..	M.	17	Young person	1900. July 16 ..	Hand drawn between grindstone and rest.
37	Engineering	Machine driller..	M.	21	Adult.. ..	July 16 ..	Hand caught between grindstone and rest
38	Carriages, &c. ..	Driller	M.	28	Adult.. ..	July 17 ..	Plate slipped between grindstone and rest.
39	Spindles	Spindle grinder	M.	19	Adult.. ..	July 17 ..	Hand caught between grindstone and rest
40	Bleaching and finishing.	Labourer.. ..	M.	30	Adult.. ..	July 17 ..	Finger caught between grindstone and file.
41	Furniture	Assistant to machinist.	M.	15½	Young person	July 18 ..	Tool slipped between grindstone and frame.
42	Saws and tools ..	Saw grinder ..	M.	18	Adult.. ..	July 18 ..	Tool caught in grindstone .. .. ..
43	Engineering	Borer	M.	16	Young person	July 19 ..	Hands caught between grindstone and rest.
44	Tools	Grinder	M.	35	Adult.. ..	July 19 ..	Grindstone broke .. ..
45	Ironfounding.. ..	Iron dresser ..	M.	18	Adult.. ..	July 20 ..	Thumb crushed between grindstone and tool.
46	Shipbuilding ..	Apprentice shipwright.	M.	14	Young person	July 20 ..	Tool slipped off grindstone .. .. ..
47	Tinplates	Shearer	M.	46	Adult.. ..	July 23 ..	Shear knife caught between plate and grindstone.
48	Engineering	Machinist ..	M.	66	Adult.. ..	July 23 ..	File caught in the grindstone .. ..
49	Machines	Grinder	M.	31	Adult.. ..	July 24 ..	Contact with grindstone .. .. ..
50	Electrical engineering.	Driller	M.	22	Adult.. ..	July 24 ..	Tool slipped .. ..
51	Engineering	Turner's apprentice.	M.	14	Young person	July 25 ..	Finger caught between grindstone and rest.
52	Machines	Turner	M.	17	Young person	July 25 ..	Contact with grindstone .. .. ..
53	Ironfounding.. ..	Apprentice fitter	M.	14	Young person	July 25 ..	Finger caught between grindstone and rest.
54	Engineering	Apprentice ..	M.	14	Young person	July 26 ..	Tool caught in grindstone .. .. ..
55	Files and saws ..	Labourer.. ..	M.	27	Adult.. ..	July 27 ..	By saw shooting pins between two grindstones.
56	Silk	Mechanic.. ..	M.	13	Young person	July 27 ..	Tool caught in grindstone, fingers caught in recovering it.
57	Engineering	Apprentice engineer.	M.	19	Adult.. ..	July 27 ..	Caught between grindstone and rest ..
58	Ironfounding.. ..	Grinder	M.	50	Adult.. ..	July 28 ..	A particle of iron flew into his eye ..
59	Engineering	Casting dresser..	M.	36	Adult.. ..	July 28 ..	Contact with grindstone .. .. ..
60	Engineering	Fitter	M.	17	Young person	July 31 ..	Thumb crushed between grindstone and guard.
61	Engineering	Iron turner ..	M.	16	Young person	July 31 ..	Contact with grindstone .. .. ..
62	Files	File grinder ..	M.	42	Adult.. ..	August 1 ..	Struck by file being ground on an adjoining stone.
63	Shipbuilding ..	Shipwright ..	M.	43	Adult.. ..	August 2 ..	Grit from grindstone .. ..
64	Nuts and bolts ..	Nail pointer ..	M.	14	Young person	August 2 ..	Finger caught between grindstone and rest.
65	Saws and files ..	Grinder	M.	24	Adult.. ..	August 2 ..	Grindstone broke .. ..
66	Engineering	Fluter	M.	13	Young person	August 3 ..	Caught between tool and side of grindstone.
67	Spindles	Turner	M.	13	Young person	August 3 ..	Caught between grindstone and rest ..
68	Shipbuilding ..	Hired labourer..	M.	27	Adult.. ..	August 4 ..	Contact with grindstone .. .. ..
69	Cotton	Mechanic.. ..	M.	19	Adult.. ..	August 6 ..	Contact with grindstone .. .. ..
70	Tube rolling	Tube cutter .	M.	26	Adult.. ..	August 7 ..	Fingers caught between grindstone and rest.
71	Carriages	Apprentice brass finisher	M.	16	Young person	August 8 ..	Hand caught between grindstone and frame.
72	Ordnance	Labourer.. ..	M.	27	Adult.. ..	August 8 ..	Grit from grindstone .. ..
73	Ordnance	Labourer.. ..	M.	19	Adult.. ..	August 8 ..	Grit from grindstone . .. .
74	Nuts and bolts ..	Bolt Brazer ..	M.	14	Young person	August 8 ..	Contact with grindstone .. .. ..

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from 1st July to 31st December, 1900—*continued.*

No.	ACCIDENT.		REMARKS.
	Precise employment of injured person at time of accident. (8)	Nature and extent of injury. (9)	(10)
36	Grinding a scraper	Left thumb crushed	Held scraper at wrong side of grindstone.
37	Grinding a tool	Left hand lacerated	Firm promised to affix moveable rests. Injured person was grinding on the wrong side of grindstone.
38	Grinding iron plate	Hand contused	The stone was very rough, and the rest had no guard.
39	Dressing grindstone	Back of left hand severely lacerated.	
40	Grinding a file	Left fingers contused.	
41	Grinding a tool	Nails of fingers on left hand taken off.	Grinding on the wrong side of grindstone.
42	Dressing grindstone	Hand lacerated.	
43	Grinding a key	Right hand lacerated.	
44	Grinding a tool	Severely shaken.	
45	Sharpening a tool	Thumb contused	The stone was worn, but is now true, and a safety rest has been fitted.
46	Grinding a tool	Finger lacerated.	
47	Grinding shear knife	Two fingers of left hand lacerated	When the knife was being taken from the stand it tilted, and injured person's hand was impacted between the frame and stone. Firm instructed to fit automatic tool rest.
48	Dressing a new grindstone	Palm of right hand lacerated.	
49	Grinding	Left fingers lacerated.	
50	Turning up grindstone	Left hand lacerated	Movable rest recommended by H.M. Inspector.
51	Grinding a tool	Left finger lacerated	Moveable rest recommended by H.M. Inspector.
52	Grinding	Back of right hand lacerated	
53	Grinding a tool	Finger contused.	
54	Grinding a tool	Left hand lacerated	Due to carelessness.
55	Receiving saws delivered from grindstones	Septum between thumb and finger lacerated.	Apparently caused by pulling at the saw before it was free of the grindstones.
56	Grinding a tool	Fingers lacerated	Occupier promised to affix moveable rests.
57	Grinding a tool	Part of right hand amputated.	
58	Grinding	Eye lacerated.	
59	Grinding a tool	Fingers lacerated	Surface of stone was uneven.
60	Grinding a tool	Thumb lacerated.	
61	Grinding a tool	Thumb lacerated.	
62	Standing near grindstone	Hand lacerated.	
63	Grinding a tool	Eye inflamed.	
64	Attempting to grind a piece of iron	Finger lacerated.	
65	Grinding a scythe-blade	Hand lacerated	
66	Playing at side of grindstone with a tool	Fingers contused.	
67	Grinding a tool	Finger lacerated.	
68	Grinding a drift	Thumb fractured	Moveable rests recommended by H.M. Inspector.
69	Grinding	Thumb lacerated	Moveable rests recommended by H.M. Inspector.
70	Grinding a tool	Fingers lacerated	Grinding on the wrong side of grindstone.
71	Grinding a tool	Fingers lacerated	Grinding on the wrong side of grindstone.
72	Grinding a tool	Eye slightly inflamed.	
73	Grinding a tool	Eye slightly inflamed.	
74	Grinding a tool	Thumb lacerated.	

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Accidents due to Grindstones registered

No.	Industry.	Injured Person.				Accident.	
		Occupation.	Sex. (M. or F.)	Age.	Whether employed as Child, Young Person, or Adult.	Date.	Causation.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
						1900.	
75	Steel	Grinder	M.	34	Adult.. ..	August 8 ..	Grindstone broke .. ..
76	Engineering	Ironturner ..	M.	24	Adult.. ..	August 9 ..	Lever which he had against grindstone broke, and his hand slipped against the stone.
77	Engineering	Iron dresser ..	M.	45	Adult.. ..	August 10 ..	Caught between grindstone and guide ..
78	Steel	Labourer.. ..	M.	56	Adult.. ..	August 10 ..	Tool struck guard and cut his finger ..
79	Engineering	Apprentice Turner.	M.	19	Adult.. ..	August 14 ..	Caught between rest and tool .. ..
80	Wool	Fireman	M.	38	Adult.. ..	August 16 ..	Caught between grindstone and scraper..
81	Engineering	Shaft oiler ..	M.	21	Adult.. ..	August 17 ..	Caught by cutter .. ..
82	Engineering	Hammerman ..	M.	44	Adult.. ..	August 17 ..	Caught between grindstone and rest ..
83	Nails	Nail machine minder.	M.	35	Adult.. ..	August 18 ..	Caught between grindstone and rest ..
84	Engineering	Cotterer	M.	20	Adult.. ..	August 20 ..	Tool caught between grindstone and rest
85	Saw mills	Machine dresser off.	M.	19	Adult.. ..	August 20 ..	Caught between grindstone and iron ..
86	Engineering	Apprentice fitter	M.	17	Young person	August 21 ..	Tool caught grindstone .. .. ..
87	Shipbuilding.. ..	Carpenter ..	M.	36	Adult.. ..	August 21 ..	Caught between grindstone and frame ..
88	Printing	Turner	M.	25	Adult.. ..	August 24 ..	Finger caught between grindstone and tool.
89	Engineering	Hammer driver	M.	14	Young person	August 24 ..	Caught between grindstone and rest ..
90	Steel pens	Steel pen grinder	F.	15	Young person	August 24 ..	Pen rebounded from grinding bob.. ..
91	Engineering	Grinder	M.	27	Adult.. ..	August 24 ..	Caught between grindstone and casting..
92	Cement	Fitter	M.	24	Adult.. ..	August 27 ..	Caught between grindstone and rest ..
93	Machines	Grinder	M.	23	Adult.. ..	August 28 ..	Caught between casting and rest .. ..
94	Engineering	Driller	M.	18	Adult.. ..	August 29 ..	Hand caught by tool .. ..
95	Machine tools ..	Apprentice turner.	M.	15	Young person	August 30 ..	Caught between grindstone and tool ..
96	Cotton	Apprentice mechanic.	M.	20	Adult.. ..	August 30 ..	Caught between tool and rest .. ..
97	Shipbuilding	Apprentice, shipwright.	M.	15	Young person	August 31 ..	Caught between grindstone and tool ..
98	Shipbuilding	Hole cutter ..	M.	26	Adult.. ..	September 3	Caught between grindstone and frame ..
99	Iron	Engineer's labourer.	M.	18	Adult.. ..	September 3	Caught between grindstone and dressing machine
100	Machines	Slider	M.	16	Young person	September 5	Caught between stand and rest .. ..
101	Glass	Beveller	M.	24	Adult.. ..	September 5	Fracture of plate of glass .. .. ..
102	Steel	Apprentice fitter	M.	15	Young person	September 6	Fingers caught between grindstone and rest.
103	Wool	Mechanic ..	M.	29	Adult.. ..	September 6	Caught between grindstone and tool ..
104	Engineering	Fitter	M.	18	Adult ..	September 8	Caught between grindstone and rest ..
105	Engineering	Labourer ..	M.	16	Young person	September 10	Caught between grindstone and tool ..
106	Files	File grinder ..	M.	40	Adult.. ..	September 10	Grindstone broke .. ..
107	Shipbuilding ..	Apprentice boiler maker.	M.	18	Adult.. ..	September 11	Contact with grindstone .. .. ..
108	Shipbuilding	Driller	M.	65	Adult.. ..	September 11	Caught between grindstone and spanner
109	Shipbuilding ..	Rivetter	M.	36	Adult.. ..	September 12	Crushed between grindstone and frame
110	Palette knives ..	Grinder	M.	40	Adult.. ..	September 12	Grindstone broke .. ..
111	Tarpaulins	Mechanic ..	M.	48	Adult.. ..	September 12	Caught between grindstone and tool handle.
112	Engineering	Fitter	M.	32	Adult.. ..	September 13	Cutter of guillotine cutting machine which was being ground.
113	Engineering	Hand driller ..	M.	24	Adult.. ..	September 13	Tool slipped .. ..
114	Machines	Apprentice grinder.	M.	16	Young person	September 14	Caught by grindstone, owing to tool slipping.
115	Waggons	Machinist ..	M.	16	Young person	September 14	Caught between grindstone and guide ..

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from 1st July to 31st December, 1900—*continued.*

No.	ACCIDENT.		REMARKS.
	Precise employment of injured person at time of accident. (8)	Nature and extent of injury. (9)	(10)
75	Preparing to grind	Forehead lacerated.	
76	Dressing grindstone	Fingers of left hand lacerated.	
77	Dressing grindstone	Left hand lacerated.	
78	Grinding a tool	Finger lacerated	Moveable rest recommended by H.M. Inspector.
79	Grinding a tool	Part of left thumb amputated	Provision of safety rests promised by the firm.
80	Grinding a scraper	Left hand lacerated.	
81	Turning up a grindstone	Part of finger, left hand, amputated.	
82	Grinding a tool	Middle finger of right hand fractured.	
83	Grinding a tool	Hand lacerated.	
84	Grinding a tool	Thumb bruised	The surface of stone was rough.
85	Grinding iron	Thumb bruised	Moveable rest recommended by H.M. Inspector.
86	Grinding a tool	Fingers lacerated	Grinding on the wrong side of grindstone.
87	Grinding a chisel	Hand contused	Moveable rest affixed. Injured person was grinding on wrong side of grindstone.
88	Grinding a tool	Tip of little finger, left hand, lacerated.	Adjustable rest recommended by H.M. Inspector.
89	Grinding a small piece of steel	Tip of left thumb lacerated	Injured person had no business at the grindstone.
90	Grinding pens	Eyeball contused.	
91	Grinding a casting	Hand contused.	
92	Turning up grindstone	Fingers contused.	
93	Grinding a casting	Finger lacerated.	
94	Grinding a tool	Part of left hand amputated	Grinding at side of stone, which had a moveable guard.
95	Grinding a tool	Thumb lacerated	Moveable rest recommended by H.M. Inspector.
96	Grinding a tool	Finger lacerated	Moveable rest recommended by H.M. Inspector.
97	Grinding a tool	Fingers contused	Grinding on the wrong side of grindstone.
98	Obtaining a tin from underneath grindstone	Hand contused.	
99	Dressing a grindstone	Hand lacerated.	
100	Grinding a tool	Hand lacerated	Moveable rests used.
101	Bevelling plate of glass at grindstone	Hand lacerated.	
102	Grinding a tool	Fingers lacerated.	
103	Grinding a tool	Thumb lacerated.	
104	Grinding a tool which slipped	Fingers lacerated	Moveable rest recommended by H.M. Inspector.
105	Grinding a tool	Thumb contused.	
106	Grinding files	Head and back contused.	
107	Grinding a tool	Thumb and finger lacerated.	
108	Dressing a grindstone	Finger crushed.	
109	Grinding a tool	Hand lacerated.	
110	Grinding palette knives	Severely shaken.	
111	Grinding a tool	Part of left hand amputated.	
112	Grinding the cutter	Left hand lacerated.	
113	Grinding a tool	Hand lacerated.	
114	Grinding a tool	Hand lacerated.	
115	Grinding a tool	Hand lacerated	Moveable rest recommended by H.M. Inspector.

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Accidents due to Grindstones registered

No.	Industry	Injured Person.				Accident.	
		Occupation.	Sex. (M. or F.)	Age.	Whether employed as Child, Young Person, or Adult.	Date.	Causation.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
						1900.	
116	Engineering	Apprentice fitter	M.	14	Young person	September 18	Tool slipped .. ..
117	Gas	Driller	M.	15	Young person	September 19	Contact with grindstone .. .. ..
118	Machines	Apprentice turner.	M.	17	Young person	September 19	Hole in grindstone caught tool .. ..
119	Engineering	Apprentice boilermaker.	M.	16	Young person	September 19	Caught between grindstone and plate ..
120	Engineering	Centrer	M.	14	Young person	September 19	Caught between tool and rest .. ..
121	Spindles	Turner	M.	23	Adult.. ..	September 20	Grindstone broke .. ..
122	Machines	Grinder	M.	18	Adult.. ..	September 20	Chip of metal flew .. ..
123	Engineering	Beltman	M.	56	Adult.. ..	September 21	Caught between grindstone and rest ..
124	Machines	Apprentice grinder.	M.	17	Young person	September 22	Fall against grindstone .. ..
125	Agricultural machines.	Messenger ..	M.	13	Young person	September 22	Caught between grindstone and rest ..
126	Machines	Grinder	M.	19	Adult.. ..	September 24	Chip of metal flew .. ..
127	Machines	Iron dresser ..	M.	29	Adult.. ..	September 24	Tool slipped between grindstone and rest
128	Carriages	Apprentice smith.	M.	17	Young person	September 25	Caught between grindstone and rest ..
129	Cotton	Beacher	M.	16	Young person	September 25	Caught between grindstone and iron ..
130	Engineering	Driller	M.	24	Adult.. ..	September 26	Tool slipped .. ..
131	Ordnance	Labourer ..	M.	31	Adult.. ..	September 27	Grit from grindstone .. ..
132	Tools, &c.	Grinder	M.	40	Adult.. ..	September 27	Grindstone broke .. ..
133	Engineering	Tinsmith.. ..	M.	17	Young person	September 27	Caught under rest .. ..
134	Engineering	Apprentice fitter	M.	16	Young person	September 28	Grit from grindstone .. ..
135	Engineering	Labourer ..	M.	17	Young person	September 28	Tool slipped .. ..
136	Shipbuilding.. ..	Engineer.. ..	M.	32	Adult.. ..	September 28	Caught between grindstone and tool ..
137	Lace	Threader.. ..	M.	14	Young person	September 28	Caught between grindstone and bar ..
138	Nails	Nail cutter ..	M.	37	Adult.. ..	September 29	Contact with grindstone .. .. ..
139	Saw mill	Planing machine man.	M.	27	Adult.. ..	October 1 ..	Hand caught against grindstone .. ..
140	Engineering	Pattern maker ..	M.	45	Adult.. ..	October 1 ..	Caught between grindstone and rest ..
141	Engineering	Fitter	M.	25	Adult.. ..	October 3 ..	Caught between grindstone and rest ..
142	Engineers	Apprentice engineer.	M.	19	Adult.. ..	October 4 ..	Caught between grindstone and rest ..
143	Provender	Loftman	M.	22	Adult.. ..	October 5 ..	Knife slipped .. ..
144	Engineering	Turner	M.	15	Young person	October 5 ..	Contact with grindstone .. .. ..
145	Engineering	Driller	M.	45	Adult.. ..	October 5 ..	Caught between grindstone and rest ..
146	Warehouse	Apprentice ..	M.	16	Young person	October 5 ..	Caught by tool .. ..
147	Saw mill	Wood turner ..	M.	42	Adult.. ..	October 8 ..	Pipe tipped up between grindstone and bar.
148	Machines	Grinder	M.	18	Adult.. ..	October 9 ..	Caught between article and rest .. ..
149	Carriages	Carpenter's apprentice.	M.	19	Adult.. ..	October 9 ..	Caught between grindstone and rest ..
150	Rivets, bolts, &c. ..	Rivet machine cutter.	M.	29	Adult.. ..	October 9 ..	Contact with grindstone .. .. ..
151	Engineering	Turner	M.	26	Adult.. ..	October 10 ..	Fingers caught between grindstone and rest.
152	Coopers	Joiner	M.	27	Adult.. ..	October 12 ..	Caught between grindstone and rest ..
153	Engineering	Assistant blacksmith.	M.	23	Adult.. ..	October 15 ..	Caught between grindstone and tool ..
154	Engineering	Fitter	M.	35	Adult.. ..	October 15 ..	Caught between grindstone and tool ..
155	Machines	Fitter	M.	15	Adult.. ..	October 16 ..	Bucket became fixed between grindstone and trough.
156	Engineering	Skilled labourer	M.	48	Adult.. ..	October 18 ..	Grit from grindstone .. ..
157	Cycles	Grinder	M.	53	Adult.. ..	October 19 ..	Grindstone jerked tubing against hand ..
158	Tinplates	Shearer	M.	40	Adult.. ..	October 20 ..	Tool slipped from grindstone .. ..

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from 1st July to 31st December, 1900—*continued.*

No.	ACCIDENT.		REMARKS.
	Precise employment of injured person at time of accident.	Nature and extent of injury.	
	(8)	(9)	(10)
116	Grinding a cutter	Point of left thumb taken off.	
117	Grinding a tool	Thumb lacerated.	
118	Grinding a tool	Finger lacerated	Moveable rest recommended by H.M. Inspector.
119	Grinding an iron plate	Right thumb amputated.	
120	Grinding a tool and holding it wrongly	Fracture of little finger	Moveable rest recommended by H.M. Inspector.
121	Pointing steel spindles	Arm fractured	No trace of defect in the pieces of grindstone.
122	Grinding an article	Eye injured (sight not affected)	
123	Cleaning grindstone	Part of left thumb amputated	Injured person used a wrong appliance.
124	Passing between two grindstones	Arm lacerated.	
125	Grinding steel (for his own amusement)	Finger tip crushed.	
126	Grinding an article	Eye burned.	
127	Grinding a tool	Right hand lacerated	The rests are fixed. These grindstones are used for dressing small castings only.
128	Grinding a tool	Left hand contused	Moveable rest affixed
129	Grinding a piece of iron	Thumb lacerated.	
130	Dressing grindstone	Left thumb nail torn off.	
131	Grinding a tool	Eye inflamed.	
132	Grinding	Perineum contused	Stone broke, apparently owing to excessive speed.
133	Grinding at wrong side of stone	Part of right hand amputated.	
134	Grinding a tool	Eye inflamed.	
135	Grinding a chisel	Fingers lacerated	Grindstone provided with automatic rest.
136	Dressing grindstone	Part of right hand amputated.	
137	Grinding	Fingers crushed.	
138	Grinding a cutter which slipped	Thumb lacerated.	
139	Turning up stone	Hand lacerated.	
140	Grinding	End of left hand finger taken off.	
141	Grinding a tool	Thumb lacerated.	
142	Grinding a tool	Hand crushed.	
143	Grinding chaff cutting knives	Wrist lacerated.	
144	Grinding a piece of iron which slipped	Hand lacerated.	
145	Grinding a drill	Finger broken.	
146	Rounding up grindstone	Finger lacerated.	
147	Grinding a piece of pipe	Thumb lacerated.	
148	Grinding an article	Left thumb lacerated.	
149	Grinding iron	Thumb lacerated.	
150	Grinding steel	Finger lacerated.	
151	Turning up grindstone	Fingers lacerated.	
152	Grinding a piece of iron	Thumb lacerated	Safety rest recommended by H.M. Inspector.
153	Turning grindstone	Hand lacerated.	
154	Grinding a tool	Thumb lacerated	Grindstone was in a bad condition.
155	Filling trough with hot water	Fingers lacerated.	
156	Grinding a drill	Eye slightly inflamed.	
157	Grinding a piece of tubing	Hand lacerated,	
158	Grinding shearing knife	Cheek lacerated.	

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Accidents due to Grindstones registered

No.	Industry.	Injured Person.				Accident.	
		Occupation.	Sex. (M. or F.)	Age.	Whether employed as Child, Young Person, or Adult.	Date.	Causation.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
						1900.	
159	Cotton	Mechanic ..	M.	23	Adult.. ..	October 20 ..	Caught between grindstone and tool ..
160	Machines	Grinder	M.	24	Adult ..	October 22 ..	Struck by piece of iron .. .. ..
161	Small arms	Fitter	M.	16	Young person	October 22 ..	Contact with grindstone .. .. ..
162	Engineering	Apprentice ..	M.	15	Young person	October 22 ..	Caught between grindstone and rest ..
163	Engineering	Pattern maker..	M.	21	Adult.. ..	October 23 ..	Caught between grindstone and rest ..
164	Bolts, rivets, &c. ..	Machineman ..	M.	19	Adult.. ..	October 23 ..	Contact with grindstone .. .. ..
165	Tubes..	Tube cutter ..	M.	20	Adult.. ..	October 24 ..	Chip of metal flew .. ..
166	Shipbuilding.. ..	Apprentice shipwright.	M.	16	Young person	October 24 ..	Caught by driving belt of grindstone ..
167	Builders and joiners	Machine hand ..	M.	15	Young person	October 24 ..	Fingers caught between grindstone and rest.
168	Engineering	Apprentice grinder.	M.	16	Young person	October 24 ..	Particle of metal entered his eye .. ..
169	Engineering	Fitter's assistant.	M.	35	Adult.. ..	October 24 ..	Caught between grindstone and rest ..
170	Ironfounding ..	Grinder	M.	50	Adult.. ..	October 25 ..	Caught between grindstone and tool ..
171	Tinplates	Shearer	M.	63	Adult.. ..	October 25 ..	Driving strap of grindstone .. .. ..
172	Screws.	Cutter grinder ..	F.	18	Adult.. ..	October 25 ..	Caught between grindstone and cutter ..
173	Tools, &c.	Grinder	M.	38	Adult.. ..	October 25 ..	Grindstone broke .. ..
174	Tools, &c.	Grinder	M.	46	Adult.. ..	October 25 ..	Grindstone broke .. ..
175	Tools, &c.	Grinder	M.	40	Adult.. ..	October 25 ..	Grindstone broke .. ..
176	Engineering	Driller	M.	28	Adult.. ..	October 25 ..	Grit from grindstone .. ..
177	Boilers	Rivetter	M.	21	Adult.. ..	October 25 ..	Caught between grindstone and tool ..
178	Gas apparatus ..	Grinder	M.	23	Adult.. ..	October 25 ..	Particle of metal entered his eye .. ..
179	Paint	Cooper	M.	19	Adult.. ..	October 26 ..	Hand caught against grindstone owing to inequality of the stone.
180	Linen	Apprentice tenter.	M.	19	Adult.. ..	October 27 ..	Caught between grindstone and bar ..
181	Belts, nuts, &c. ..	Bolt-maker ..	M.	13	Young person	October 29 ..	Caught by revolving axle of grindstone..
182	Cutlers, filemakers, &c.	File grinder ..	M.	18	Adult.. ..	October 30 ..	Grindstone broke .. ..
183	Cutlers, filemakers, &c.	File grinder ..	M.	40	Adult.. ..	October 30 ..	Grindstone broke .. ..
184	Engineering	Apprentice fitter	M.	17	Young person	October 30 ..	Tool caught in grindstone and twisted ..
185	Machines	Labourer.. ..	M.	21	Adult.. ..	October 30 ..	Contact with grindstone .. .. ..
186	Builders	Boxmaker ..	M.	33	Adult.. ..	October 30 ..	Caught between grindstone and tool ..
187	Machines	Grinder	M.	26	Adult.. ..	November 1	Chip of metal flew .. ..
188	Engineering	Apprentice ..	M.	17	Young person	November 1	Caught between grindstone and rest ..
189	Engineering	Fitter	M.	28	Adult.. ..	November 2	Caught between grindstone and rest ..
190	Saw mill	Apprentice turner.	M.	19	Adult.. ..	November 2	Caught between grindstone and rest ..
191	Machines	Labourer.. ..	M.	28	Adult.. ..	November 2	Bolt was driven back .. ..
192	Engineering	Turner	M.	28	Adult.. ..	November 7	Caught between grindstone and rest ..
193	Spindles	Grinder	M.	21	Adult.. ..	November 7	Tool slipped .. ..
194	Cycles	Fitter	M.	50	Adult.. ..	November 8	Caught between grindstone and frame ..
195	Chemicals	Fitter	M.	21	Adult.. ..	November 8	Caught between grindstone and tool ..
196	Shipbuilding ..	Holder-up ..	M.	24	Adult.. ..	November 8	Contact with grindstone .. .. ..
197	Ironfounding ..	Body-maker ..	M.	16	Young person	November 8	Caught between grindstone and plane ..
198	Engineering	Boilersmith ..	M.	27	Adult.. ..	November 9	Grit from grindstone .. ..
199	Machines	Grinder	M.	23	Adult.. ..	November 9	Roller beam slipped .. ..
200	Ironfounding ..	Grinder	M.	28	Adult.. ..	November 9	His seat board slipped and hand came in contact with grindstone.

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from 1st July to 31st December, 1900—*continued.*

No.	ACCIDENT.		REMARKS.
	Precise employment of injured person at time of accident.	Nature and extent of injury.	
	(8)	(9)	(10)
159	Grinding a tool	Fingers lacerated	The point of the tool caught in stone which was rather soft.
160	Stopping grindstone with piece of iron	Groin contused.	
161	Grinding a tool	Thumb lacerated.	
162	Playing with grindstone	Finger lacerated.	
163	Grinding a tool	Hand lacerated.	
164	Grinding a tool	Hand lacerated.	
165	Grinding a saw	Eyeball contused.	
166	Grinding tools	Right forearm fractured	The belting of grindstone was fenced on one side only, but firm promised to fence the other side also.
167	Grinding a tool	Fingers lacerated	Moveable rest to be provided.
168	Grinding a casting	Eyeball lacerated.	
169	Grinding a tool	Part of right thumb taken off.	
170	Grinding a tool	Left hand lacerated.	
171	Grinding shearing knives	Scalp lacerated.	
172	Grinding a cutter	End of right index finger crushed	When removing cutter, used finger instead of a "picker."
173	Getting ready to grind	Skull fractured.	
174	Getting ready to grind	Knee contused.	
175	Getting ready to grind	Back contused.	
176	Grinding a tool	Eye inflamed.	
177	Grinding a tool	Thumb contused	Moveable rest recommended by H.M. Inspector.
178	Grinding a casting	Eye lacerated	Injured person was not wearing the spectacles provided by the firm.
179	Grinding a "gigger"	Fingers lacerated	
180	Grinding a bar on the wrong side of stone	Thumb lacerated.	
181	Playing with grindstone	Left forearm fractured.	
182	Grinding tools	Thigh contused.	
183	Grinding tools	Forehead lacerated and arm contused.	
184	Grinding tools	Thumb lacerated.	
185	Grinding a chisel	Finger lacerated	Suitable rests suggested by H.M. Inspector.
186	Grinding tool	Thumb lacerated.	
187	Grinding an article	Eye lacerated.	
188	Turning up grindstone	Hand lacerated.	
189	Grinding a tool	Thumb crushed.	
190	Dressing grindstone	Fingers lacerated.	
191	Grinding a bolt	Finger lacerated	The stone was irregular.
192	Grinding a tool	Thumb lacerated.	
193	Dressing grindstone	Finger lacerated.	
194	Grinding a tool	End of thumb crushed.	
195	Grinding tool	Fingers lacerated	Grinding on the wrong side of grindstone.
196	Grinding a tool	Hand lacerated.	
197	Grinding a tool	Thumb lacerated	Grindstone was not guarded.
198	Grinding a tool	Eye slightly injured.	
199	Grinding a roller beam	Finger fractured.	
200	Grinding an article	Finger lacerated.	

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Accidents due to Grindstones registered

No.	Industry.	Injured Person.				Accident.	
		Occupation.	Sex. (M. or F.)	Age.	Whether employed as Child, Young Person, or Adult.	Date.	Causation.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
201	Engineering	Planer	M.	21	Adult.. ..	1900. November 9	Contact with grindstone .. .. ..
202	Oils, &c.	Apprentice fitter	M.	14½	Young person	November 9	Caught between grindstone and guard ..
203	Waggons	Wheel painter ..	M.	14	Young person	November 12	Caught between grindstone and rest ..
204	Shipbuilding ..	Apprentice carpenter.	M.	18	Adult.. ..	November 13	Caught between grindstone and trough..
205	Machines	Blacksmith ..	M.	20	Adult.. ..	November 13	Tool slipped .. ..
206	Small arms	Grinder	M.	32	Adult.. ..	November 14	Piece of steel flew .. ..
207	Engineering	Grinder	M.	17	Young person	November 15	Caught between grindstone and rest ..
208	Engineering	Apprentice ..	M.	17	Young person	November 17	Caught between grindstone and rest owing to tool tilting
209	Machines	Iron dresser ..	M.	22	Adult.. ..	November 19	Contact with grindstone .. .. ..
210	Shipbuilding.. ..	Yard boy.. ..	M.	17	Young person	November 22	Caught between grindstone and rest ..
211	Spindles	Flyer maker ..	M.	31	Adult.. ..	November 22	Trapped between flyer and lever .. ..
212	Steel	"Fraiser" ..	M.	14	Young person	November 23	Caught between grindstone and rest ..
213	Machines	Iron dresser ..	M.	20	Adult.. ..	November 23	Caught between grindstone and rest ..
214	Carriages and waggons.	Grinder	M.	23	Adult.. ..	November 23	Contact with grindstone .. .. ..
215	Spindles	Spindle maker ..	M.	30	Adult.. ..	November 24	Finger caught against grindstone .. ..
216	Paper	Labourer.. ..	M.	25	Adult.. ..	November 24	Caught between grindstone and rest ..
217	Shipbuilding ..	Labourer.. ..	M.	66	Adult.. ..	November 26	Caught between grindstone and rest ..
218	Shipbuilding ..	Shipwright ..	M.	24	Adult.. ..	November 26	Piece of steel flew .. ..
219	Engineering	Apprentice Pattern maker.	M.	15	Young person	November 26	Caught between grindstone and rest ..
220	Engineering	Machine-man ..	M.	24	Adult.. ..	November 27	Caught between grindstone and tool ..
221	Engineering	Iron turner ..	M.	19	Adult.. ..	November 29	Caught between grindstone and tool ..
222	Waggons	Turner	M.	24	Adult.. ..	November 29	Caught between grindstone and tool ..
223	Machines	Labourer.. ..	M.	32	Adult.. ..	November 30	Contact with grindstone .. .. ..
224	Ironfounding ..	Foundry labourer	M.	23	Adult.. ..	December 3	Caught between grindstone and rest ..
225	Saws, knives, &c. ..	Grinder	M.	19	Adult.. ..	December 5	Grindstone broke .. ..
226	Iron	Rivet maker's assistant.	M.	19	Adult.. ..	December 6	Caught between grindstone and tool owing to tool slipping.
227	Cycles	Machinist ..	M.	39	Adult.. ..	December 7	Chisel driven back by an inequality in the grindstone.
228	Machine tools ..	Apprentice fitter	M.	14	Young person	December 8	Caught between grindstone and scraper..
229	Engineering	Apprentice fitter	M.	15	Young person	December 8	Caught between grindstone and tool ..
230	Steel	Slinger	M.	25	Adult.. ..	December 10	Caught between grindstone and rest ..
231	Carriages, &c. ..	Turner	M.	29	Adult.. ..	December 10	Caught between grindstone and rest ..
232	Machines	Grinder	M.	20	Adult.. ..	December 12	Contact with grindstone .. .. ..
233	Machines	Iron turner ..	M.	15	Young person	December 14	Caught between grindstone and rest ..
234	Engineering	Driller	M.	18	Adult.. ..	December 17	Caught between grindstone and bracket
235	Electrical machinery	Turner	M.	31	Adult.. ..	December 19	Caught between grindstone and trough ..
236	Wire	Brass finisher ..	M.	21	Adult.. ..	December 19	Caught between guard and grindstone ..
237	Waggons	Waggon repairer	M.	16	Young person	December 20	Caught between grindstone and tool ..
238	Machines	Grinder	M.	21	Adult.. ..	December 20	Caught between grindstone and beam ..

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from 1st July to 31st December, 1900—*continued.*

No.	ACCIDENT.		REMARKS.
	Precise employment of injured person at time of accident. (8)	Nature and extent of injury. (9)	(10)
201	Grinding a tool	Hands lacerated.	
202	Grinding a tool	Finger crushed.	
203	Grinding cleaner	Three fingers of left hand amputated.	
204	Grinding a tool	Left foot fractured.	
205	Grinding a tool	Thumb lacerated.	
206	Grinding swords	Eye lacerated.	
207	Grinding a tool	Thumb crushed.	
208	Grinding a tool	Fingers lacerated.	
209	Grinding an article which slipped	Hand lacerated.	
210	Grinding a tool	Fingers lacerated.	
211	Grinding a flyer	Finger lacerated.	
212	Grinding a bar	Ends of fingers taken off.	
213	Grinding a casting	Finger lacerated	Large grindstone.
214	Grinding a buffer plate	Fingers lacerated.	
215	Grinding a spindle	Finger lacerated.	
216	Grinding scraper	Hand lacerated.	
217	Cleaning the rest	Thumb lacerated.	
218	Grinding a tool	Eye lacerated.	
219	Grinding a tool	Finger lacerated	Grindstone was not very true.
220	Grinding a tool	Thumb lacerated.	
221	Grinding a tool	Hand contused.	
222	Grinding a tool	Finger lacerated.	
223	Grinding	Hand lacerated.	
224	Grinding metal studs	Thumb crushed.	
225	Grinding scraper blades	Fatal	The stone was thought to have absorbed too much moisture.
226	Grinding a tool	Thumb contused.	
227	Grinding a tool	Fingers lacerated.	
228	Grinding a scraper	Hand contused	A moveable rest to be provided.
229	Grinding a tool	Thumb lacerated.	
230	Grinding metal pipe	Hand lacerated	Moveable rest recommended by H.M. Inspector.
231	Grinding a tool	Finger lacerated.	
232	Grinding an article	Thumb lacerated.	
233	Grinding a tool	Thumb lacerated	Injured boy got another boy to keep the moveable rest down while he ground a tool.
234	Grinding a tool	Finger contused	Grinding on the wrong side. A moveable rest to be tried by the firm.
235	Grinding a tool	Hand contused.	
236	Grinding	Fingers contused.	
237	Grinding a tool	Finger contused	Moveable rest recommended by H.M. Inspector.
238	Grinding an iron beam	Hand contused.	

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SOUTHERN DIVISION.

REPORT OF THE SUPERINTENDING INSPECTOR.

March, 1901.

SIR,

I BEG leave to report as follows upon the work of the Factory Department in the Southern Division for the year 1900.

Staff. The staff, as last year, consists of 10 district inspectors, 12 junior inspectors, and 13 inspector's assistants. These 35 inspectors made 28,487 visits to factories, 52,180 to workshops, 402 to docks and warehouses, and 7,186 to other places, such as the local factory and sanitary offices, police courts, registrars' offices, schools, residences of certifying surgeons, &c. They also attended 245 inquests. This makes a total of 88,500 visits, or an average of 2,530 for each inspector; or, allowing for holidays and sick leave, about 55 visits each per week. These figures are much the same as last year, except that the inquests have increased from 200 to 245.

Works. The total number of factories in the southern division is 25,467, of workshops 49,815, of factory laundries 1,085, of workshop laundries 3,227, of docks 618, and of warehouses 630, or a total of 80,842 works.

Visits. Thus it will be seen that to the 26,552 factories (including laundries) 28,487 visits were made, and to the 53,042 workshops (including laundries) 52,180 visits were made in 1900. If the visits could have been impartially distributed this would have allowed one visit to every factory and workshop, an ideal state of things. But, unfortunately, it does not follow—because the number of visits to factories exceeded the number of factories in the 10 districts—that all were inspected or even visited in the year. We have to lament the fact that 10,618 of the factories were not inspected last year; similarly, of the 53,042 workshops in the registers, 21,215 were not inspected. The discrepancy is accounted for by several visits to many factories and workshops, many of such visits being paid before and after the legal period of employment, or to make special enquiry about accidents, lead-poisoning cases, or some alleged dangerous or unhealthy process, to investigate complaints of infringements of Factory Acts and Truck Acts, or to ask for or give information, and were not, therefore, careful inspections of the factories and workshops.

Change of work of Department. In fact, the work of the department is undergoing a change; so far as the district and junior inspectors are concerned, their time is very much taken up with special enquiries and special visits, such as those required to enforce special rules, to recommend in various trades the remedies suggested by the Dangerous Trade and Departmental Committees, as, for instance, in glass polishing, bronzing, paper staining, galvanising, loading and unloading in docks and wharves, &c.; to attend inquests and police courts, to attend on subpœna as witness in county courts on cases under Workmen's Compensation Acts, and much work not actually factory and workshop inspection. In London and in Bristol districts there are not sufficient inspectors to make a careful and thorough inspection of every factory and workshop once in every year, even if there were no hindrances to the work, and in London, too, the work has been hampered by an insuffiency of clerks, only three to the five districts.

Alteration of Districts. Another thing which last year militated against the thorough inspection of every factory in the division, was the re-organisation of inspectors' districts and of certifying surgeons' districts, to make the former conform as far as possible to county boundaries, and in London to the new borough boundaries, and the latter to recognised sanitary areas. This necessitated transfer of works from one district to another, and much time

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had to be spent in the re-arrangement. Although this was done at the Home Office under your direction, yet the inspectors had to be consulted as to details, and they in turn had to consult the certifying surgeons and local authorities, and to arrange the numerous transfers. In future years we shall, no doubt, reap the advantage of the work so done last year.

Works under Special Rules.

The inspectors have endeavoured to carry out the instruction to visit works under special rules four times in the year, but of the 1,650 works under special rules in the Southern Division 1,595 have not been visited four times. The White Lead, Red Lead, Lucifer Match. and India-rubber Works have been so visited, but it has been found impossible to visit all the aerated water works, brass casting shops, paint and colour works, potteries, chemical works, &c., four times in the year. These have been visited once, many of them twice, and some three times.

To keep pace with the work of the department, which is continually on the increase, it will I think be necessary to increase the staff of factory inspectors, especially in the metropolis and large industrial centres : otherwise the unsatisfactory state of things shown by the foregoing figures will continue. I regret both the present state of things and the suggested remedy, for I felt more satisfaction in the work when each inspector could spend at least five days a week in the regular and systematic inspection of factories and workshops from top to bottom and from end to end, and had nothing to distract his attention from his work, than I do now when he is required to make enquiries in or calls at a dozen factories or other places situated in a dozen different parts of his district all on the same day without the time to thoroughly inspect any one. There is danger of some factories and workshops being over-inspected, or rather over-visited (as *e.g.*, one which had to be visited 24 times last year, mainly for enquiries as to accidents or lead poisoning cases), and of others not being inspected at all.

The reports made by the inspectors as to the general work of the district show that they with me deplore the endless interruption to the work of systematic inspection.

Changes in West London District.

Mr. Blenkinsopp (*West London*).—Considerable changes were made in this district. Instead of a small portion of the counties Berks, Bucks, and Oxon, formerly included in the district, the whole of these three counties now belong to it, while a considerable extent of the old London portion has been taken off and added to North London. One effect of this change is that there are now in the district fewer works in which dangerous trades are carried on, very little metal grinding is done, there is only one white lead factory, and apparently no place in which mercury is used. The paint and colour works are few and small, there is probably no place in which metallochrome is used in a dry state, and the amount of bronzing done is insignificant. At present I know of only one place in which water gas is made. The work, therefore, may not be in some respects quite so interesting as formerly. In the place of the above there is naturally a large addition of works usual to country places, *e.g.*, breweries, saw mills, and the like. There are the blanket factories of Witney, the tweed mills of Chipping Norton, and the biscuit works of Reading, all of some interest. In two towns working in wood forms the chief occupation, viz., High Wycombe, devoted to chairmaking, and Chesham, noted for "wood ware," including toys, children's spades, &c., though at the latter place there are now some boot and shoe works. One thing is noticeable in these agricultural counties, and that is the absence of any number of large roller mills for flour-grinding, which are so numerous in Lincolnshire, Hunts, and Cambs, and in which the machinery is varied and dangerous.

General work has been much hindered by the necessity of investigating cases of lead poisoning, or alleged lead poisoning. In a large number of cases sufficient information is not given. The surgeons at some of the hospitals are particularly remiss in this respect. Sometimes only the name and residence of the patients is given. An Inspector has to go to this address to ascertain where the man worked, then a visit to this place has to be made to ascertain whether it is a factory or workshop. Very often it is neither. Should it prove to be either, then the report has to be forwarded to the certifying surgeon, who, after investigation, frequently gives it as his opinion, that it is not really a case of lead poisoning.

East London.

Mr. Hoare (*East London*).—I have now had charge of this district for over a year, I do not feel satisfied with the way the Factory Acts are being obeyed, this is however, owing to exceptional circumstances, for nine months I had not sufficient staff to do the work, and on many occasions I have been compelled to put Inspectors, and especially Inspectors' Assistants, to do clerical work, owing to the want of clerical staff.

There have been grave difficulties in many cases in strictly enforcing the Acts in the past year, owing to the absolute necessity of allowing employers to execute war contracts under great pressure, but this has now almost passed away, it began at a time when trade in all its branches was exceptionally busy.

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Bristol.

Mr. Maitland (*Bristol*).—At the beginning of last year this district was very largely increased in area, population, and number of factories and workshops. It now consists of the whole of the counties of Gloucester and Somerset, and the northern half of Wilts.

Area	2,395,041 acres.
Population	1,277,800
No. of Factories	3,445
No. of Workshops	5,341

Covering so large an area, much time is expended in getting about the district, it taking some four or five hours to reach from Bristol some of the small towns we have to visit.

As for myself, I have had but little time for actual inspection, owing to all the special matters which an inspector in charge of a large district, such as this, has to attend to himself, and, indeed, I have had often to obtain the assistance of my collegues in special matters, to which immediate attention was demanded. Another instruction we have for the same reason, been unable to carry out, is that of inspecting, four times in the year, those places which are under special rules, of these over 160 were not visited the required number of times last year.

The war also gave us extra work, for we had firms scattered about in various parts of the district who had War Office contracts for January 1st, khaki uniforms, webbing, serge, &c., and who were allowed to work overtime. These factories had to be visited and reported on once a month, which entailed considerable travelling, and, therefore, consumption of time.

Mr. Johnston (*West London*).—The work in this district last year was greatly hampered by the material alterations of the boundaries, which took place in November, and which entailed much additional office work.

Much valuable time was wasted in making enquiries into cases of lead-poisoning occurring among house painters. Medical practitioners are bound by law to report any case of lead-poisoning coming to their knowledge which they believe to have been contracted in a factory or workshop, but as they have not that knowledge of the law which would enable them to decide what constitutes a factory or workshop, they naturally report any case where a man states that he was "employed" by Mr. ——., builder and decorator.

I would suggest as an improvement that it should be made necessary to report not only the name and address of the patient, but also that of his employer, for in that case a single enquiry at the employer's address in the first instance would suffice.

A similar and greater loss of time is incurred in attending inquests where death has resulted from accidents which did not occur in factories or workshops. Coroners, wishing to avoid the possibility of having to adjourn an inquest, report numbers of cases on which the Factory Acts have no bearing, but H.M. Inspector has to attend at the opening of the court and spend perhaps several hours there to no purpose.

In view of the ever-increasing number of provisions which have to be administered by the staff in factories, such as removal of dust, escape in case of fire, special rules in unhealthy trades, &c., it appears to me necessary that the ordinary provisions of the Acts, such as obtaining certificates of fitness of young persons for work and fencing of machinery, all of which are now well known, should be more summarily enforced, as an unreasonable amount of time is wasted in giving repeated cautions to occupiers, which are in many cases disregarded owing to the leniency with which the offences are finally dealt with when a prosecution is instituted.

State of Trade.—Industrial Developments.—During the year 1900 the manufacturing establishments of the country were working at full speed, and there was very little short time or want of employment.

Industrial developments.

The principal feature that strikes an Inspector in going through factories now-a-days is the extended use of electricity, both for lighting and driving purposes. This is a gain in every way; in the former by securing a better light and free from the unwholesome products of combustion, and in the latter by doing away with much dangerous shafting and mill-gearing. But it appears from the reports of competent observers that this country is somewhat behindhand in its utilization of electricity for industrial purposes, and that the Americans especially are forging ahead of us. All the same, progress is being made here, dark and dingy factories are giving place to light and airy ones, and the conditions of work are improving, if slowly.

Captain Bevan (*Southampton*).—The busiest place in the district has been Southampton Docks, where over 150,000 men and 40,000 horses have been embarked for South Africa. I am not aware of a single accident having occurred in embarkation or disembarkation.

Electric motors.

Mr. Pendock (*Bristol*).—Another factor of safety to be reckoned upon is the practice now creeping in of transmitting motion by electric cable instead of by the more cumbrous system of shafting, pulleys, belting, &c. An electric motor occupies so little room, and can be so

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closely attached to the machine it is required to drive, that many of the old-fashioned entanglements such as countershafts, pulleys, &c., can be entirely dispensed with. The little attention required, and the ease and promptitude with which machinery electrically driven can be stopped in an emergency, are both advantages of essential value. The Corporation of Bristol, as in other centres, are taking steps to encourage the use of electrical power by laying special mains for the supply of direct current and by adding extensively to their central generating plant. Doubtless, when in full working order this enterprise will give existence to a new order of things in many of the factories now using gas and steam power (not so much from choice as from necessity). It will be interesting to note the effects of the change in a few years' time.

Mr. Shinner (*Norwich*).—I am glad to note the extended use which is being made of electricity in relation to industry.

The utility and convenience of the electric motor is beyond question, and they are usually highly appreciated; especially is this so in regard to small industries. Here I am glad to say the current is supplied on the "medium high-pressure direct" system—a system which makes the use of motors especially easy and convenient, as motors for use with alternate current are not yet quite as successful as they may perhaps some day become. I am also glad to note the great use which is being made of the electric light in factories; the benefit to the health of the operatives is and must be very great indeed. At the same time I think perhaps a little caution should be used with the electric light in regard to eyesight. Women at power sewing machines sometimes sit with a bright clear glass 16-candle power lamp close to their eye and unshaded. I have heard before now this complained of as affecting eyesight. What should be done is one or both of two things. The electric lamps should be of the kind known as "obscured," or "partly obscured," namely, made so that the bright incandescent filament cannot be seen. And, secondly, a shade (even common newspaper such as the compositors in letterpress printing works often arrange) put over the lamp shade and sufficiently low as to shield the eyes from any direct light, while throwing abundant light on the work in hand. I pointed this out to a large boot manufacturer here, and he at once ordered a set of new lamps to experiment with The proper method is to have plenty of light (but not a glare) on the work, but to always have the eyes of the operator in shade and not exposed to glare. Snowfields have to be negotiated by the aid of coloured spectacles, and cases are on record of total blindness caused by the exposure of the eyes to too strong a light, or to a strong light for too long a period. I look forward hopefully to better factory conditions as regards the atmosphere in factories resulting from the use of electric light, electric motors (instead of gas-engines), and lastly (but perhaps the most troublesome factor) to a better appreciation of the value of proper ventilation by employers and employed alike. I am sorry to say that at present they do not attach nearly the importance to this point which it deserves and requires. It does not seem to be recognised that air is capable of being "used up" at all; far less that respiration and artificial combustion contribute to that result. Last year was an especially good year in the "fish-curing" industry at Lowestoft and Yarmouth. It was in fact the "record" year. This year the "catch" has also been very good. Another industrial change worth noting is the application of labour-saving appliances driven by power, gas or steam-engines (usually gas-engines) to maltings. Not so very many years ago it would have been difficult to have found *power* in use in any malting, but now it is really quite common. In these counties maltings are numerous owing to the well-known and approved character of the barley grown in Norfolk and neighbourhood.

Mr. Harston (*Kent*).—A great change affecting one of the largest industries in Kent has taken place during the year. A company under the title of The Associated Portland Cement Manufacturers (1900), Limited, has formed, and about 90 per cent. of the firms in this district have centred their businesses into the one undertaking. Working agreements have also been entered into with most of the remaining manufacturers. In several of the largest factories the new system of crushing by means of ball and tube mills has been introduced and is in course of adoption in several others. One inestimable advantage of this new system is that practically no dust is given off in the process of manufacture, and as it is claimed that it will materially cheapen production, it is to be hoped that its adoption will become general.

Mr. Shuter (*Plymouth*).—Trade continues very brisk in Devon and Cornwall. Shipbuilders engineers, and builders generally are very busy, while the shirt and collar industry and clothing trades give employment to a large number of hands.

A large engineering firm at Exeter has recently introduced a profit sharing system amongst their employés, which I hope may prove successful, and so lead to others following their example.

Overtime.—I regret to say that this was worked to a greater extent in the year 1900 than in any of the four preceding years. The war in South Africa necessitated a good deal of overwork in works belonging to the Crown and to Government contractors in order to get off supplies as quickly as possible, and trade generally being very good, those entitled to work overtime have taken advantage of the modification. I do not, however, retract my former confession of faith that overtime for protected persons is contrary to the spirit of the Factory Acts, injurious to the workers, and could with advantage be abolished except for perishable articles, and in such national emergencies as the late war. As the textile trades can do without it, so could other and less important *Overtime.*

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trades. It unfortunately happens that amongst those trades in which overtime is allowed are some of the most sedentary and unhealthy, such as the making of wearing apparel, letter press printing, and bookbinding.

Mr. Vaughan (*North London*).—It is satisfactory to find that recognition is now being given to the pressing need of defining some of the classes of trade to whom overtime is granted, *e.g.*, fancy boxes, bon bons, &c., and notably Christmas presents. But reform should go further and deeper. It would be difficult to explain or justify the inclusion of some, and the exclusion of other trades in respect of this privilege. If liability to exceptional pressure of work is the ground upon which admission to it is granted, there is scarcely any industry in the country which does not at times come within this category. If, on the other hand, the healthiness or unhealthiness of the occupation is to be the test, how could such trades as those of clothing and bookbinding be distinguished as exceptionally healthy, to the disadvantage of many of the industries in which women are largely employed, certainly no more arduous or unhealthy, but still barred from the privilege of overtime? If the trade of the country would not stand the entire abolition of overtime, it has always seemed to me that it would be more reasonable to grant the permission to every industry, excluding some peculiarly unwholesome ones. I might give as an instance of the inconsistency of the incidence of the present regulations the case of Lipton, Limited. This firm has a very large number of departments, to some of which the coveted permission to work overtime is given, whilst from others it is withheld. Are tea packing, fancy box making, and letter press printing, where it is allowed—healthier than sausage making, cocoa and coffee preparing, where it is refused? The need for it is as great in the case of the latter as the former.

Mr. Shinner (*Norwich*).—I hope and believe that employers are, at least, beginning to recognise that employment of their hands overtime is a short-sighted policy, and really bad economy, some I know think so. There is also a waning inclination, I believe, on the part of the employed to grasp at the chance of making extra wages by overtime. If so, it is I think a healthy sign on both sides; health and full efficiency while at work being better than extra wages and long hours, better also in its results to the employer.

Mr. Allhusen (*North London*).—Despite the fact that form No. 21, stating that overtime may not be worked upon more than three days in a week, is in the majority of cases affixed, I have found it necessary, on more than one occasion, to caution firms who had sent in four or even five notices within six days (between Monday and Saturday). One may insist upon the affixing of notices, one cannot guarantee that they will be read.

Complaints. **Complaints and Prosecutions.**—The number of written complaints of infringements of the Acts which reached me in 1900 was 388, against 503 in 1899. All these were sent in in the usual way to the District Inspector for investigation, report, and return. The diminution in number is, I think, caused by more complaints having gone direct to the inspectors, instead of through the Home Office, and, therefore, not through my hands in the first instance. In 1899 the London inspectors were located in three different quarters—some at Home Office, some in Parliament Street, and some at Finsbury Circus. The concentration in March, 1900, of all at 39, Victoria Street, has enabled correspondents to find them more easily, and letters, vaguely addressed, which formerly would have gone to me at the Home Office, are now distributed direct to the inspectors concerned. The weekly reports, examined by me every week, show results of numerous investigations of complaints of which I had no previous intimation. People in London, at any rate, make full use of the opportunities to complain of the irregularities of their employers, their neighbours, or competitors, by calling at the Home Office, or at this office, or by writing to you, or to me, or to the inspectors. These complaints, though frequently exaggerated and sometimes futile, often lead to the discovery of serious breaches of the Acts.

Prosecutions. The number of firms against whom prosecution reports were submitted to me for consideration was 410, as against 350 in 1899, most of them for more than one offence, and many of them of a very serious nature, as will be seen in the appendix to your report, and in the return of cases under sec. 82 of the Act of 1878. I gave my best consideration to each case, and approved of proceedings against 335 firms, and disapproved of 75. These latter were generally let off with a caution. Convictions were obtained in nearly all the approved cases.

Mr. Hoare (*East London*).—I have prosecuted in 98 cases and obtained convictions in almost all, and in many substantial penalties, the majority being against Jew tailors. In one case I proceeded against a firm for employing hands on Sunday; the firm as Christians employed Christian workpeople, but into one of their work-rooms they put a Jew, who engaged his own hands and worked under the Jewish regulations; the defence set up was that the Jew was the occupier, and the magistrate upheld this; the Jew was a pieceworker working solely for the firm; he never agreed to become their tenant, and had not free access to the room. Off certain work they made deductions, but there was no evidence to prove it was for rent, and it was more probably for use of tools and light. Ten cases were for not fencing, four of which were circular saws; I obtained a conviction in each of these.

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Mr. Butler (*West London*).—A summons was taken out at the Marylebone Police Court against a laundry occupier for not fencing the rollers of an ordinary wringing machine. The occupier was fined £4 and costs. The principal guard produced in evidence to show that wringing machines can be be fenced was "King's Patent Roller Guard."

Mr. Owner (*South London*).—Probably the most important prosecution undertaken by me during the year was one for obstruction at night against a large firm of brewers. The facts were briefly as follows:—When night visiting the bottling-room was found to be open, and boys were seen to be working before I entered. After my entry, and whilst taking a declaration from one of the lads, several others disappeared. I told the foreman I should require them produced. He replied, he did not know where they were, as there were no others. He subsequently produced two, and then definitely told me they were all the boys at work that night. About one week later I again visited, this time in the day. I then saw two lads who told me they were sent out and told to hide in the field. They were fetched in by the foreman after I had gone. I took declarations from them and prosecuted the firm for employment of boys after hours and for obstruction. The manager said he was responsible for the illegal employment, and the magistrate fined him £4 and costs. As to the obstruction, a solicitor defended and tried to prove that no obstruction had taken place. The magistrate, however, found that I had been obstructed and fined the company as occupiers of the premises £20 and £10 10*s.* costs, characterising the business as a disgraceful shuffle. The company appealed to quarter sessions, and, "without deciding any point of law," the justices "quashed the conviction," but without costs.

Mr. Johnston (*West London*).—Some country benches show the greatest reluctance to convict for offences under the Factory Acts. They appear to regard neglect to fence dangerous machinery, even after warning, as no serious matter, and think it sufficient to inflict costs only, which, perhaps, may amount to as much as 5*s.* in all; a sum quite inadequate to vindicate the law.

Accidents.—The accidents in the Southern Division, notified in 1900 under section 18 of Factory Act of 1895, amounted to the enormous total of 17,959. The notices of these to the Inspectors and to the Certifying Surgeons, and the reports of the Certifying Surgeons, all passed through my own hands during the year, having first been received by the District Inspectors, and registered by their clerks. The vast majority of the 17,959 accidents were of a trifling character, as will be seen by the fact that only 4,464 of them were notified to the Certifying Surgeons and reported upon by them. It follows that 13,495 were not fatal, nor caused by machinery moved by power, nor through vats, pans, or other structures filled with hot liquid or molten metal, nor by explosion or escape of gas, steam, or metal, and therefore were notified to the Inspector only. Only 43 of the total number of accidents occurred in workshops. The labour of registering and tabulating the large number of accidents, for this and the other four Divisions, is very great, and I fear that at least one half of it is useless; the injuries being trivial, although preventing the workers on one of the three working days after the accident from being employed for five hours on his ordinary work. If a man whilst hammering in a nail hits his finger, no amount of enquiry or of regulation under the Factory Acts will prevent him or another man from doing the same thing again. But it is different in the case of an accident caused by machinery in motion; enquiry may and generally does reveal insecure fencing or some fault in the machinery which can be remedied. The time of H.M. Inspectors and their clerks, of the Superintending Inspector, and of the Statistical Branch—and one may add of the factory occupiers and their clerks—could be better employed than in registering and tabulating every month thousands upon thousands of paltry and unpreventable accidents. *Accidents.*

Mr. Blenkinsopp (*West London*).—One of the fatal accidents was at an aërated water factory. A girl was wiping and clearing the metal part of a syphon already filled and charged at very high pressure, and at the time of the accident the pressure inside was probably not less than 100 lbs. to the square inch.

The syphon burst, and a piece of glass penetrated her neck and cut the windpipe. She was immediately attended to, but died before she could be got to the hospital.

The mask she was wearing was evidently too short, and did not protect the neck. The jury added a rider that a piece of strong leather should be fastened to the bottom of the mask, and hang down to protect the throat. This was done by the firm, who also, I believe, undertook to obtain much better masks.

Mr. Woodgate (*South London*).—I beg to report that the number of accidents in the South Metropolitan District during the year 1900 amounted to 3,598. In 1899 the number reported was 3,277, showing an increase of 321. This increase may be greatly accounted for by the more careful reporting of accidents. Several prosecutions took place in the district last year for not reporting accidents, and in all cases the defendants were convicted.

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Mr. Hoare (*East London*).—There have been 3,190 accidents in this district reported, and I fear a considerable number not reported. It reads an enormous number for one district, but is largely composed of trivial accidents, which are hardly worth reporting even for statistical or any other purpose where they are not caused by machinery and such like causes.

Of fatal accidents there have been 64 (mostly from docks and wharves). Of such I may mention :—

1. To a man engaged in altering a belt on a shaft in motion. Engineers will persist in following this practice, and also oiling bearings on running shafting with unsuitable ladders and wearing loose jackets.

2. To a man oiling as above.

3. To a man putting on a belt.

4. To a man falling out of a teagle door.

5, 6 and 7. To persons going under the cage of lifts without any necessity for so doing.

8. To a man at a gas-works being suffocated by want of forethought and having no companion with him.

9. To a drayman. He was hooking on bales to be lifted by hydraulic crane, and hooked in his apron; when hauled up some 12 feet the strings of apron gave way and he fell. Many draymen will wear aprons when engaged in this way.

10. To a man engaged in running strong sulphuric acid into an iron drum; an explosion followed; its cause remains a mystery.

11 and 12. To two men who entered a large spirit vat which had been empty for some weeks, except for some 60 gallons of water to wash it out; they were at once overcome by fumes, and, despite every effort to resuscitate, were killed; no theory could be brought forward to explain how fatal gas could be in the vat; it was a vat of some 9,000 gallons.

Mr. Vaughan (*North London*).—The total number of accidents in my district during 1900 was 2,082. No less than 998 were reported by railway companies in connection with warehouses, goods stations, &c., and of this number not more than 3 to 4 per cent. were reportable to the certifying surgeons, whilst the large majority were of an unimportant character, ranging from bruises and sprains in connection with loading and unloading to bites and kicks received from horses. It is no doubt essential that all accidents should be reported; but I think the fact that nearly 50 per cent. of the total accidents in my district received from one source alone are, practically of no interest to the department deserves to be recorded. Printing machinery was accountable for 162; and although none of these were of a very serious character, the large majority of them was preventable by fencing. There were altogether 15 fatal accidents, distributed as follows :—

3 from falls.
1 from lift.
1 from engine crank shaft.
1 caught in belting.
1 crushed by van.
1 suddenly fainting in a petroleum tank.
1 from spindle-moulding machine.
3 from explosion at a cartridge factory.
1 from bursting of a boiler tube.
1 from scalds.
1 cause unknown.

The fatal lift accident occurred to a boy who, whilst packing a case close to the lift-opening, fell down the well. There have also been several non-fatal lift accidents, generally due to looking over the lift-gates and being caught by the descending cage, the youth of persons allowed to use lifts, and the absence of lift attendants.

Mr. Shinner (*Norwich*).—Many accidents, but none of them of a serious nature, have occurred at a large firm here on "drop presses," which are tin-stamping machinery, though not of the ordinary type. My colleague, Mr. Fearon, who had had previous experience of this particular type of machine, when visiting in this district, suggested to the firm to arrange a handle working a check which it would be necessary for the operator to work with his hand before the weight could descend. The firm agreed to this, are pleased with the result, and are extending the arrangement to all their similar machines. Accidents occur from time to time with circular saws, and probably always will—in ways which a guard cannot prevent, but in one case an accident which might have proved a very serious one was caused by the operator failing to replace the guard.

Mr. Wright (*Northampton*).—Three fatal accidents were reported during the year :—

(1.) Due to scalding at a straw-plait dyeing works at Luton. The deceased, a man, was employed at a dye vat when he fell into the same. The top of the vat was 2 ft. 4 in. from the platform on which he was standing. This vat I have asked to be raised to 3 ft. above the platform.

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(2.) Due to a belt wrapping round a revolving shaft. The deceased, a young person, attempted to stop this belt from wrapping round the shaft, when it caught him and carried him round with it. No belt hooks were in use at the time of the accident. I have suggested that they be fitted.

(3.) Due to an accident on the railway, and not reportable under the Factory Acts.

Of the non-fatal ones a large number were caused by power presses in the brick and boot trades.

Those occurring with the brick presses were as a rule due to undue haste by the injured person in taking away the bricks from the machine ; guards being fitted in nearly all cases. If the person working at these machines would always allow the brick to be delivered on the table before attempting to take it from the machine, these accidents would not occur. Instead of this they put their hands under the guard before the brick has really been completed. Much might be done by the foreman in charge in explaining the correct way to work before a person is put on a press. Generally speaking, the operatives are young boys, 13 or 14 years of age, without any previous experience.

The accidents due to power presses in the boot trade are not always preventable by the present-day fencing, and, in my opinion, much yet remains to be done in the way of making the several machines used in the trade less dangerous to the operatives.

Mr. Harston (*Kent*).—The accidents reported from all sources during the past year reach the large aggregate of 2,011. Of this number 411—over 20 per cent.—were due to causes which rendered necessary reports from the certifying surgeons. The fatalities numbered 22, and were due to the following causes :—

Run over by locomotive	1
Emery wheel bursting	1
Caught by revolving shafts	3
Planing machine—crushed between table and frame whilst tightening a nut	1
Breaking of wire rope of hoist	1
Breaking of crane chain	1
Crushed by crane	1
Crushed by anchor	1
Fall from chimney stack, wharves, stages, &c.	6
Collapse of kilns	2
Fall of materials	3
Cause unknown—found with skull fractured	1
Total	22

The classification, as far as possible, of the non-fatal accidents, reported to the certifying surgeons, yields the following results :—

Due to lathes	40
„ circular saws	28
„ planing machines	14
„ locomotives	12
„ emery wheels and grindstones	14
„ power presses	11
„ cylinder and other machines in paper mills	40
„ lifts	10
„ laundry machinery	5
„ printing presses	3
Unclassified	234
Total	411

Amongst the fatal accidents there were several concerning which enquiry elicited information of an interesting and, possibly, useful nature from a departmental point of view. The original size of the emery wheel which was responsible for the death of a workman was 18 inches by 2½ inches, and had been in use less than three months, during which time its diameter had been reduced to 16 inches. The Norton Emery Wheel Company, Massachusetts, were the makers, and certified that the wheel had been tested up to 2,000 revolutions per minute. No test was made after the wheel was fixed, and, so far as I could ascertain, it was never afterwards even examined. It would have been thought that the latter simple precaution would at least have been taken by the employers, seeing that this was not the first emery wheel accident which had occurred in the works, though, happily, without injury to anyone. The maximum speed at which the wheel was said to have been worked after being fixed

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was 1,800 revolutions per minute, whilst at the time of the accident it was computed to have been running at about 1,600. This estimate, which gives a peripheral velocity of 6,702 feet per minute, was probably much less than the actual speed attained, seeing that the engine was an old one, having been in use for 25 years, and was not under thorough control. It was admitted that the governors were not immediately effective when the load was wholly or partially removed. With the great mechanical advantages which obtained in the gearing, it only required, therefore, a slight acceleration in the primary motion—easily produced by the stoppage of one or two heavy machines—to give the wheel a dangerous momentum. This is probably what happened. The wheel, which weighed about 50 lbs., burst with enormous force, some portions of it being projected through the roof, and were never afterwards found. The accident occurred in a large well-ventilated shop, where it could scarcely have been subjected to any great variation of temperature. A minute examination of the broken parts produced did not bring to light any defect likely to be noticeable externally; but several large pieces were missing, and the examination was not, therefore, of much value. The evidence undoubtedly pointed to overspeeding as the cause of the accident, but it is quite possible that a close examination at frequent intervals might have led to the detection of some indication of danger.

Another workman lost his life through the breaking of a wire rope attached to a lift at a cement works. He had pushed a loaded trolley on to the lift, which had been hoisted up to the stage floor—only about 12 or 14 feet from the ground—when the rope broke, and the iron ties of the cage in falling crushed him against the floor. The rope was ½ inch diameter, of steel wire, with hemp core, almost new, having been ordered specially for the work less than five weeks before the accident. The breaking strain of a wire rope of this thickness is placed ordinarily at 7 tons; but as the material in this was supposed to be of the finest quality procurable, it was fixed at 11½ tons, and the safe stress at 36 cwt. Yet with a load of only 21 cwt. the rope broke with fatal consequences. It had been manufactured by a well-known firm, and there was not the slightest evidence that it had been "punished" by any excessive load. On examination I found that the wire strands for a considerable length were broken in many places; at some points more than half of them had given way. The firm produced to me correspondence showing that in placing the order a rope of the highest quality and strength had been asked for, and the size of the drum or barrel over which it was to be wound was correctly specified. The manager stated that his attention was called to the fluffy condition of the rope a week after it was first used; that he thoroughly examined it and found it apparently in perfect order. I could not find the slightest indication that the break was due to erosion. What then was the cause of the mishap? As the matter was of great importance—wire ropes having generally superseded the use of chains for work of this character owing to a widespread belief that they are much more reliable—I endeavoured to follow up the enquiry, but the results were not very satisfactory. The rope was sent to the makers with a request for their views as to the cause of breakage. After a lapse of three months the following communication was received:—

> "Regarding our communication respecting the crane rope that broke, the piece of rope returned to us was carefully tested, and the material used in its manufacture was up to our standard in every way. In all the ropes we make every piece of wire we use is tested—both ends for torsions, right angle bends, and breaking strain—so that we can assure only wire of our standard quality being used, any wire that is at all inferior being rejected. We regret exceedingly the unfortunate accident that has occurred."

I have very little doubt in my own mind that the accident was due to the rope not being sufficiently flexible for the small size of the pulley and barrel over which it moved; that there had been either an error in the selection of the rope or in its manufacture; and that the wire used was not suited to resist the frequent and somewhat acute bending strains to which it was subjected.

Of the two fatalities caused by the collapse of kilns whilst they were in process of being dismantled, one was almost certainly brought about by the operations being engaged in before sufficient time had been allowed for the kiln to cool and settle into a normal condition after great heat expansion. Danger was in this case apprehended as the dome of the arch was observed to have become bent, and on this account the men were ordered not to draw the kiln, and yet, strangely enough, they were allowed to go on the top and knock out some of the spangle (cement), thus bringing about its immediate collapse. The result of this precipitancy was the loss of one man's life, the body being badly burnt, and serious injury to another man. If it were considered dangerous for the men to go inside the kiln to draw the clinkers, it was clearly much more so, in view of the heated condition of the structure, to tamper with the spangle which practically held it together.

In the other case one man was killed and two others injured from the falling in of an arch of a brick kiln which was undergoing reconstruction. The whole of the brickwork above the arch had been taken down with the exception of the last two ring courses. Centres had been used to support the brickwork whilst other arches had been dismantled, and were about to be inserted in the one in question when the arch fell in on the men working inside. As most of the material binding the courses appeared to have been taken away, only a very slight movement had been needed to displace the brickwork, and this had apparently been brought about by the partial demolition of one of the haunches.

The breaking of a crane chain caused the death of another workman employed in unloading timber from a barge at a wharf. From the evidence given at the inquest nothing seemed to be known as to the strength of the chain. It was said by a member of the firm that when a new chain was required one was ordered from the blacksmith of sufficient strength to carry a certain

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weight, and they trusted him to make one. The chain in question had been in use for five or six years, and was said to have been examined a month before. It was believed by the firm to be safe for anything up to 2 tons, and broke with a load of less than 6 cwt. There could be no doubt from the examination of the chain that the welding of the broken link had been defective, that it had given way a considerable time before the accident, and that the opening had gradually widened under each load. The jury were of opinion that the accident was due to a "defective chain, a flaw in the link of which would have been seen if the chain had been carefully examined."

Coming to the non-fatal accidents 40 were due to lathes, but as the great majority of them were either caused by the chuck, or "work," and not by any part which can be fenced, they do not call for comment. An equal number happened in paper mills from cylinder and other machines, most of them also of a trivial nature, and for the prevention of which it is difficult, if not impossible, to devise effectual safeguards.

Fourteen accidents were caused by grindstones and emery wheels. They were due to either the fingers or some portion of the workmen's hands getting between the objects being ground and the stone or between the stone and rest.

Hoist accidents numbered 10. In the three cases I was able to investigate protection was afforded, but was not satisfactory.

The classification shows eleven accidents from power presses. These were not all caused by contact with the stamp itself, but most of them by some other part of the press. In one instance where injury had been inflicted by the stamp, I had visited the works only a day or two before and requested that guards should be fitted to all the presses. Compliance was promised, but the work had not been carried out in time to prevent the accident. I was only able to investigate four of the fourteen accidents from overhand planing machines. Only in one instance had an adequate guard been provided, and in this it was not fitted properly. The occupier informed me that he had repeatedly warned the machinist against using the plane without the cutters being completely covered whilst planing flat timber, but without avail.

Cleaning moving machinery brought about 26 other accidents, oiling under similar conditions 8, and adjusting belts 6, whilst 15 happened to workmen who were attempting to effect some alteration or repair with the machinery at work. It is interesting to note that not a single accident has been reported throughout the year from mineral water works.

Mr. Shuter (*Plymouth*).—As in former years fencing and accidents must of necessity occupy a prominent place in a report of this kind, for while it is true that greater attention is paid every year to the former, yet there is no appreciable decrease in the number of the latter. The total number of accidents amount to 1,478, but of this a very large percentage come from the Royal Dockyards here, and many are of a most trivial nature, for instance, quite a number are caused by persons slipping and falling while walking to their work, or from one shop to another. I suppose it is difficult to know where to draw the line, but one is often led to ask what good purpose can be served by the notification of such, with the consequent registration, enumeration, &c., &c. On the other hand, many an important matter is not reported, simply because no one was injured sufficiently to call for a report.

As an instance of this I might refer to one which occurred some time ago, which, but for the slightest chance, might have resulted in severe fatalities. The air-chamber of a torpedo was being tested to a very high pressure by oil, and the maximum number of lbs. had been almost reached, when suddenly the end of the chamber was blown clean out and was precipitated with enormous force across the shop, narrowly missing the men standing by; had it struck anyone the result must have proved fatal, and yet beyond being covered with oil no one suffered in the least. I am given to understand that this chamber had been tested previously by compressed air up to 1,500 lbs. per square inch, and had stood the test. In this case, had one of the men received a slight injury incapacitating him for five hours, it would have been reported to inspector and certifying surgeon, and an investigation had taken place; but since no one was injured I only heard of it through a private source some time after.

I am of opinion that any explosion or bursting of a body while under pressure or in motion should be reportable, whether any one is injured or not.

Of the 1,478 accidents reported during the year 15 proved fatal, and are classified as follows:—

5 caused by articles falling on persons.
2 „ „ cranes swinging round and striking persons standing by.
3 „ „ persons being run over by locomotives, trucks, &c., or by being jammed between them.
2 „ „ persons falling into docks or holds of vessels.
1 „ „ a woman getting her shawl entangled in a fly-wheel of a machine.
1 „ „ a chaff-cutter.
1 „ „ revolving shafting.

The latter might be alluded to briefly here. A man was employed in rigging derricks at a building slip in H.M. Dockyard. To do this he had to be drawn in a sling to the roof of the slip. A shaft, 3 in. diameter, ran along the whole length of the slip, 13 ft. from the ground, for the purpose of driving some winches. Deceased was being hoisted past this shaft when his jacket become caught by the coupling bolts and he was carried around several times before

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falling to the ground, and when picked up was found to be dead. I have suggested that one of two courses be adopted, either that the shaft be completely cased in, or else that a fast and loose pulley be fitted with striking gear to this particular line of shafting, and that an order be given for it to be stopped whenever anyone has to come in close proximity to it.

Mr. Ireland (*East London*).—A fatal hoist accident occurred during the year. It was the result of riding on a goods hoist contrary to instructions. The probability is that deceased was looking out in passing one of the landings, and that he leant too far over, his head coming in contact with the lintel of the landing doorway.

Another fatality occurred, but it does not properly come under the head of a hoist accident, the hoist not being erected, and the well being in the hands of the builders. A woman in carrying goods had occasion to pass near the well. A lamp was placed on the ground about ten feet from the well, but the only light thrown upon the well itself was through the open door of a workroom near. The woman went into this room to see her "chum." While there, she heard the foreman coming, and rushed out, closing the door behind her. This cut the light off from the well, and it is supposed that in the darkness she ran up against one of the scaffold poles near, and in a stunned condition fell into the well, which was 5½ feet deep, 2½ feet of which was water.

An accident occurred with a hydro extractor at a laundry, which is rather mysterious in some respects. A man was cleaning the top of the outer casing with a piece of waste, when his arm was wrenched violently. The revolving basket seems to have caught his arm for an instant, and then thrown it off again. The veins of the arm were knotted like cords, and it had to be amputated, but there was no evidence of the bruising and crushing to be expected if the arm were caught between the basket and the casing, nor was there any trace of this on the machine itself. The accident was probably caused by the hand merely coming in contact with the rapidly revolving basket. A cover for the machine has now been provided.

Mr. Wilson (*Southampton*).—I enquired into a large number of accidents during the year, the majority of which were not of a serious nature, generally resulting in a severe cut, the breaking of a small bone, or some similar mishap.

An accident was reported from Aldershot due to the bursting of an emery wheel. A man was sharpening a circular saw, when the emery wheel flew, striking the guard—which was a steel plate—and glancing from that downwards on to his foot, which was slightly injured ; had the guard not been there he would have been struck in the face and probably killed.

At a large brewery a man was found dead in the bottom of a fermenting vat, and the firm reported that a man had died of carbonic oxide poisoning. I visited, and found that the man had entered the vat during the night, and had been overcome and suffocated by the carbon-di-oxide gas which was left in the vat after fermentation had taken place. Since then I have recommended that in all breweries a notice be affixed, stating the nature of the gas, and prohibiting men from using the vats until after they have been tested with a lighted candle, and found free from gas. In some breweries I found that two men were always in the cleaning process, in others that from four to twenty-four hours were allowed to elapse before anyone might enter the vats, and in others I found that the properties of the gas were entirely unknown to the workmen. In one small brewery a man informed me that he was quite sure there was no danger from gas in his vats, as he always "kept the plug in" after emptying, to prevent any gas from coming up.

Mr. Allhusen (*North London*).—There have also been a considerable number of accidents from power-driven rollers, such as are used in metal rolling works, sweetmeat factories, bakeries, &c., and owing to the very varying thickness of the articles rolled, it is most difficult to find a sattsfactory protection.

Here again, very many accidents would have been obviated had greater attention been paid by the workers ; one can only suppose that the long continued working at the same machine engenders a false feeling of security, too often with deplorable results.

None of the accidents investigated by me have been due to palpably dangerous and unfenced machinery, although, of course, the occurrence of the calamity has frequently afforded me opportunity to increase or extend the guards as they formerly stood.

Mr. Seymour (*South London*).—It is very distressing to find on investigation that so many accidents occur purely through carelessness or inattention on the part of the operatives, who in numerous cases are injured in parts of machinery where it would seem impossible for them to get.

Calender hands in laundries are constantly getting one or more fingers drawn in between the roller and the iron, and on enquiry I am generally informed that the girl was turning her head to speak to someone else and not watching the work. These cases are also aggravated by the girl becoming frightened and forgetting that foot pressure on the treadle at her feet will release the iron and probably enable her to draw out her hand.

Another fruitful cause of accidents is the obstinacy of the worker in neglecting to use the guards which are fitted to many machines. Complaint is made that the guard is in the way of the work, and although in a few cases this may be so, yet it is probable that many accidents would be prevented if the guard was used, common sense being applied to find a method of working with it on. In a few instances I have found a man working on a machine, such as a circular saw or a planing machine, to which a really good useful guard has been fitted, and either an important part of the guard has been removed or else the guard is placed so far from the dangerous point that it is less than useless as a protection.

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Accidents in Docks.—Section 23 of the Factory Act of 1895 extended to docks and wharves the provisions of the Factory Acts as to accidents, so far as relates to the process of loading or unloading therefrom or thereto. Many fatal accidents occurring in docks are notified by the occupiers and also by coroners, the latter requesting the attendance of an Inspector at the inquests. On enquiry it often turns out that the deceased persons were not engaged in loading or unloading, and that the accidents were due to falling from the masts of vessels or falling into the water. The departmental report on this subject by Mr. Maitland and Mr. Erant—printed in your report for 1899—has been brought to the notice of most of the dock authorities and also of many of the stevedores employed by them. In the absence of any special rules applicable to docks, it unfortunately happens that we have no power to insist on the precautions recommended in the report, nor of any of the precautions suggested by the Factory Acts, except to ask the magistrates to make an order prohibiting the use of a dangerous machine. The Inspectors cannot insist on the quays being securely fenced nor efficiently lighted, nor that precautions shall be taken when running locomotives along them, nor even that the machinery used shall be securely fenced. So far, therefore, their visits have been advisory only, and I cannot say that they have had much effect. The time so spent has of course diminished the time which would otherwise have been devoted to the inspection of factories, in which our powers are ample and well defined. Even if we had the power to enforce special regulations in docks and wharves, I am not sure that it would not be advisable to appoint special officers to do the work. Except in the matter of fencing of machinery, the experience of Factory Inspectors would not serve as Dock Inspectors. Anyhow if we are expected to do anything effective for the purpose of decreasing the number of fatal and other accidents in docks and wharves we must be provided with the power and also with the necessary staff. (The same remarks apply to buildings in course of construction.) To the remarks of the Inspectors I append a description by Mr. Maitland, of the Bristol City Marine Ambulance Corps, a movement for saving life in docks and rivers worthy of imitation. The following report of a fatality on November 10th, 1900, and a consequent prosecution for not sending notice of the accident to H.M. Inspector and to the Certifying Surgeon, is taken from the "Bristol Mercury" of February 6th, 1901, and is of importance on account of the bearing the decision—that a "ship" may be a "factory"—has on cases under the Workmen's Compensation Act :— *Dock accidents.*

> Yesterday, at Bristol police court, Messrs. J. H. Howell and Edward Parsons gave their decision in the case heard on Friday week against Mark Whitwill and Son for not reporting to H.M. Inspector of Factories an accident which occurred on the s.s. "Ettrick" at the Floating Harbour. Mr. Maitland, H.M. Inspector of Factories, prosecuted, and Mr. J. Inskip defended.
>
> Mr. Howell read the decision of the magistrates, which was as follows :—"This is an information by Mr. J. S. Maitland, one of His Majesty's Inspectors of Factories, against Messrs. Mark Whitwill and Son, of this city, shipping agents, for neglecting to give notice in pursuance of section 18 of the Factory and Workshops Act, 1895, of an accident which happened on board the s.s. "Ettrick" whilst taking in a cargo at the Glasgow shed at the Bristol city docks, such accident resulting in the death of a man named Evans. It was admitted before us by Mr. Inskip, the solicitor for the defendants, that if notice of the accident was required his clients were responsible for the neglect, and in addition to this admission it was either proved or admitted before us that Messrs. Whitwill and Son were the tenants of that part of the city docks known as the Glasgow shed, and they were the agents of the owners of the steamship "Ettrick," and that Mr. Mark Whitwill was one of the registered owners of the ship. The facts of the case we are called upon to decide are not in dispute, and are as follows :—A workman named Evans was employed, with others, by the defendants to assist in loading the "Ettrick." At the time of the accident some cases of boots were being wheeled from the quay wall and lowered into the hold of the ship by means of the ship's steam winch. The particular work Evans was called upon to do was to convey from the quay wall these cases of boots upon trucks provided by the defendants to an appointed place on the "Ettrick," where they were attached to a chain which was attached to the steam winch, and then lowered into the hold of the ship. It was in the performance of this duty that Evans met with his accident. He wheeled his case of boots to the chain, and after the case had been duly attached to the chain by a fellow workman the winch was set in motion, and the case of boots was in transit to the hold of the ship, when by some means or other Evans came in contact with this case, and, probably to save himself from being knocked over, he grasped it, and was taken over the hold of the ship, into which he dropped, receiving injuries from which he subsequently died. By section 23 of the Factory and Workshops Act, 1895, for the purpose of giving notice as to accidents, &c., the following definition of a factory is given :—"Every dock, wharf, quay, and warehouse, and so far as relates to the process of loading or unloading therefrom or thereto, all machinery and plant used in that process." The question for us to decide is whether Evans was employed in a factory according to this definition, and after hearing the careful arguments by the complainant and for the defendants, and referring to several cases quoted, we are of opinion that he was, and therefore convict the defendants. We are, however, of opinion that this is not a case of wilful neglect to give notice, but arose from a *bonâ fide* belief that no

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notice was necessary, and therefore we shall only inflict a penalty of 5s., and such costs as the complainant has been put to in bringing the case before us.

Mr. Shinner (*Norwich*).—A few months ago visits were (on instructions) paid to the dock and wharf authorities in this district after the issue of the special report on that matter by Messrs. Maitland and Eraut.

The docks at a certain port in this district are of some size and local importance, there being two large basins. I found that drownings occurred in them from time to time, there having been as many as three in a single month. The lighting does not appear to me to be either sufficient in quantity nor to be well placed; nor are there ring bolts or safety chains to give anyone once in the water a chance of ever getting out again or of holding on until assistance can arrive. I mentioned these matters on my first visit. Quite recently I called again, and was informed that the dock authority had duly received the departmental report after my first visit, but that nothing had been done with regard to the matters previously mentioned. This was months after, and though one of the fatal cases occurred at a particularly badly-lighted and dangerous point. It is said that drunkenness is the cause of the drownings, but I am not disposed to accept this as the sole cause.

Mr. Ireland (*East London*).—One fruitful source of accidents in docks is where, during repairs to a ship after unloading has been completed, the hatches, as is commonly the case, are left off. The only lights provided for the workmen are usually a few candles stuck here and there, which serve but to make the darkness visible. Within the last two years I have attended four inquests due to men falling down the hatchways in the darkness. Riders are invariably added by the juries drawing attention to the necessity of either closing the hatches or providing sufficient light between decks. But only the employers immediately concerned are communicated with by the coroner, and the cases are beyond our jurisdiction. The result is that, although the employers who have had the coroner's notice may take the desired precautions in future, the bulk of the others either remain ignorant of, or are indifferent to, the danger of the practice.

Greater care should also be exercised in private dry docks in lighting the dock and in providing protection during fogs. The latter is very often entirely neglected, and in many cases the only lights provided are at the gangway to the ship under repair.

Great ignorance seems to prevail among shipowners and wharfingers generally regarding the proper treatment of crane chains. During the year I attended three inquests connected with fatal accidents due to the breaking of crane chains, and in not one of these had proper precautions been taken to examine or anneal the chains. Too often an unskilled man is given the responsibility of examining the chains, and this seldom develops into a link-by-link examination; and quite as often the man who selects the sling for any particular job is quite ignorant of the load he is going to raise, or the capacity of the chain he proposes using for the work he is going to put it to. In one case a witness at an inquest was of the opinion that a $\frac{3}{8}$-inch chain would bear a load of 5 tons, the safe load being really less than a fifth of that. In another case there was carelessness in slinging, in addition to neglect of proper care of the chain, the sling being placed, absolutely without protection, round the sharp edges of a propeller blade. In the third case, although on examination after only two months' wear a new chain was found to require repairing, the same chain was used for similar work during the following ten months without any further real examination or annealing. It is not to be wondered at that it gave way. It was loaded very near its safe load for a similar chain in good condition, but when it broke there were links from which 15 to 20 per cent. of the diameter had been worn away.

Periodic examination of the crane itself is only less important than that of the chain, the members of the crane being subject to the same jerking as the chain.

A fatal accident occurred during the year through the stay straps of a Scotch derrick crane giving way, causing the crane to overturn into the river. The straps were, in section, rectangles with rounded ends. In one of them the fracture was clean throughout, but in the other old fractures were apparent at both ends. The cross-section of the strap seemed ample for the stresses on it, but it is well known that in a structure under tension the diminution in strength due to a fracture is far in excess of the mere reduction in area.

From rough measurements I made I calculated that the material could not have been stressed beyond 15 cwts. per square inch when it broke. The old fractures, the application during frosty weather of sudden stresses after a period of rest (work was just being commenced on a frosty morning when the accident occurred), and the alteration which must have taken place in the internal structure of the strap material due to the shocks it must have been subjected to in its life of 22 years, would together give sufficient explanation for rupture taking place under such a low stress.

There was no system of examination of the crane, although the company was careful in the examination and annealing of their chains. If any examination had been made it is probably that the fractured strap would have been discovered. If anything wrong was observed about the crane it was put right, but no attempt seems to have been made to search out defects. This practice too often results in the first warning being a serious accident entailing the loss of life or limb.

Astonishing to relate, a similar accident occurred with the new (a similar) crane purchased to replace the old one, but the precaution had been taken in this case to use two straps for each stay instead of one as before, so that when one gave way the crane was prevented from falling into the river by the other one.

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The stresses on the strap could not have exceeded one ton per square inch, unless there was some defect in the fitting which threw extraordinary stresses on to the strap. In all probability there was some defect in the material of the strap, unobservable from the outside. I could not get this confirmed, as the strap had gone to the makers.

Still another similar accident occurred to this crane, but this time it was due to a different cause—to the paul which held the jib in position shearing through the lip of one of the ratches teeth. The jib, having nothing to support it, consequently fell. The craneman was evidently at fault here, as he should see that the paul is in full contact with the teeth before he lets go.

Mr. Wilson (*Southampton*).—Men occasionally fall into the docks and are killed or drowned, and such will no doubt continue until it is compulsory to fence the dock margins. In the Southampton Dockyard there are no chains or railings at the edges of the basins; in H.M. Dockyard at Portsmouth there are chains round all the basins, but they are fixed so close to the edge that anyone slipping would no doubt fall over, even if he did not fall between the chain and the margin, which is made possible by the large amount of "sag" (about 15 inches), there is in the chains.

Mr. Owner (*South London*).—There has again been a lamentable loss of life in the timber docks of this district. With painful frequency inquests are held on men who have been drowned whilst approaching or leaving their ships. In most cases want of a proper gangway is found to be the cause, coupled with insufficient lighting. Several dead bodies were found in the water, without evidence as to how they came there. Others fell off piles of timber into the docks, and yet another was killed by a falling pile of deals.

As to the urgent need for gangways, there appears to be some difficulty who should provide them. There are not so far as I am aware any regulations which compel ships to carry them, and the dock companies do not appear disposed to provide any. The lighting of these docks is continually complained of, and I am able to bear testimony to its inefficieney. It is, however, next to impossible to effectively light these places whilst the timber is landed as at present. The first aim seems to be to discharge the ship as rapidly as possible, consequently the cargo is dumped down on to the quay side without being sorted or stacked. By this means the quay side is entirely filled up, and in order that foot passengers may get along tunnels are left in these huge stacks of timber. As these passage ways are not lighted, men frequently mistake their way and walk into the water. Then, as there are no chains at the water level, the poor fellows drown. Inquest after inquest is attended, recommendations are made by the jury, the coroner, and myself, but no preventive measures are adopted.

In illustration of what I have said, I may mention the case of a man engaged on board a steam dredger. The vessel was moored to the quay and deceased left in charge as watchman. At low water, the ship sheered off from the quay and lay on the mud, the only means of access then being by a ladder 25 ft. long. Deceased had been on shore, and when descending the ladder it is supposed he slipped and fell into the mud, and was suffocated. After a lengthened inquiry the jury returned a verdict of accidental death, but requested the coroner to write the company and point out that it should be their duty to provide proper gangways for all ships using the docks. This case is considerably aggravated by the fact that this is the second inquest held on fatalities at this dock within a month.

In the previous case, Mr. Seymour specially visited the premises in company with the superintendent. It was then suggested that the company should provide gangways for the ships, but the superintendent said he "did not think the company should do anything in the matter. The ships should provide their own gangways."

There are also under construction in the same neighbourhood other docks, and upon these small boys are engaged throughout the night engine cleaning. Several accidents have occurred and one boy has been drowned. The risks these lads run in getting to and from their employment can only be understood after a visit to the spot. It is to be regretted that boys of 14 should be called upon to run such risks.

Mr. Maitland (*Bristol*).—In the early months of last year, 1900, certain persons engaged in matters connected with riverside and harbour work, being struck with the large number of accidents occurring on the water, undertook the formation of a class to instruct labourers in the work of the St. John Ambulance Association. The class was held at the Seamen's Institute. Captain Trezise, of the Midland Railway Barge Office, was secretary, and the men having passed the necessary examination, a marine ambulance corps was started. The movement was heartily taken up by several prominent gentlemen of the City, who allowed their names to appear as members of the council of the corps. The object of the corps is to have a large number of men trained in First Aid work scattered about the harbour, so that they may attend to the numerous cases of accident that occur. It will show how this help was needed when it is learnt that over 100 cases were treated by the 30 men in four months. The matter of finance was a difficult one, for in order to be able to render efficient aid and means of transport, stretchers with appliances had to be provided. Fortunately the corps, in the person of one of their officers, found a most efficient collector, for by his own efforts he was able to obtain a considerable sum from the large firms whose warehouses lie near, or on the harbour. The officers of the corps hope eventually to have as many as nine stations about the harbour in which all appliances for first aid will be kept. According to the rules no man is eligible for office or membership who does not hold a St. John First Aid Certificate (the medical officer alone excepted), and in order to retain membership each man must offer himself and pass the re-examination yearly. Classes will be held twice a year, or more frequently if necessary. The men are dressed in uniform as soon as they have qualified for membership, the funds paying

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for the cost, but each man pays 2d. a week towards the clothing fund. The uniform is worn on drill nights and on other occasions, such as public ceremonies, when first aid might be needed. It is proposed in the summer to hold swimming classes, with special instruction in life-saving methods. About half the men and recruits—in all about 40—can swim, and it is hoped that by offering some distinctive badge the rest will be induced to learn this necessary branch of the work. Among the men about 40 lives can be claimed as saved from drowning; one hand can claim to have saved 14.

Bristol is, it is believed, the first city in the United Kingdom to form a marine ambulance corps, and the excellent example set might well be copied in other seaport towns.

It may be mentioned that the corps in no way acts in opposition to the St. John Ambulance Association or Brigade, in fact from the local centre of the former the corps has received the most cordial support. One morning an exciting incident occurred at the Bristol Harbour wharf, which, but for the timely assistance of the Marine Ambulance men, might have been attended with fatal consequences.

It appears that about 8 o'clock a gang of dockers boarded the ss. "Excelsior" for the purpose of discharging grain. On going below the men were overcome by fumes arising therefrom. The incident was first discovered by one of the ambulance men, who gave it out that a man had been seized with a fit. Members of the ambulance corps were quickly on the spot, and soon discovered the cause of the occurrence. Ropes were secured, and two or three of the men pluckily went below. There they found eight men had been overcome. Under great difficulty they fastened ropes round the unfortunate men's bodies, and they were hauled up on to the deck. Steps were immediately taken to restore respiration. These measures were successful, and the men were removed to the hospital, where they were attended to.

Accident insurance.

Insurance against Accidents.—Last year I commented unfavourably on the action of some accident insurance companies in taking advantage of the necessities of injured persons, or of the widows and families of persons killed by accident in factories, to whittle down to the lowest point the sum to be paid under the Workmen's Compensation Act. I am glad to find my remarks corroborated by His Honour Judge Gye, of the Hampshire County Court, who, in a case before him of a smith's striker who lost an eye through a splinter of iron entering it, said some strong things about the interference of insurance companies in employers' liability actions. This interference, he said, "was a great evil, and would have to be dealt with. A great deal of negotiation often took place between the agents of an insurance company and the person injured, and worse still, in some cases, between the local agents of the insurance company and the widow of a man who had been killed, and things were done that were extremely undesirable. In ninety-nine cases out of a hundred the respondents were not aware of what took place; and he had come accross several cases where respondents themselves were perfectly ready to compensate a man to the full, but the insurance company would not let them do it." He said he had made up his mind not to recognise the insurance companies in these cases.

He awarded the plaintiff half his wages during the period that he was incapacitated, and ordered defendant to pay all costs. Of course if a workman or workman's widow is able to employ a solicitor, or to take the case himself or herself into the County Court, the insurance companies generally have to pay the full amount, but so few persons at a time of illness or bereavement can do this.

I note that now the insurance companies are going on another tack, viz., refusing to pay full compensation unless the employers can prove that the accident was not due to any want of fencing, or of use of safety appliances, or of sound materials. It would, I think, be advantageous to all parties if employers generally were to avail themselves of a mutual system of insurance in each trade, or in large concerns effect their own insurance. In the following case the workmen themselves give an object lesson on how to do it.

Mr. Harston (Kent).—In connection with two of the largest firms in my district—one employing from 1,500 to 2,000 hands and the other 3,000—a somewhat novel method of insurance by the workmen themselves has been in vogue for several months. It is carried out on the penny-in-the-slot system, and is done with the knowledge and approval of the firms. A box with automatic arrangements has been placed in the factory, and by inserting a penny in the slot the workman is able to procure two tickets. On one he writes certain required particulars and returns it to the box, the other he retains as a kind of voucher, insures him in case of accident, for a period of one week, the compensation to be allowed being £1 per week for ten weeks; £100 in case of death, and £50 in case of total disablement. This is in addition to the insurance effected by the firms, and the workmen, I understand, avail themselves largely of the system.

Fencing of machinery.

Fencing of Machinery.—I have received from H.M. Inspectors of the Southern Division very full reports on this important subject, showing that it is continually receiving their attention, and that, on the whole, progress is made. It is natural to suppose that there ought to be some approach to finality in this matter, but the conditions

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are continually changing, more and more work is done by machinery, new factories are built, old types of factory, machinery, and mill-fencing, give place to new, improvements in the mode of fencing are discovered, and above all there is the everlasting *laisser faire* of both employers and employed to be contended against. A step in advance was made in 1900, by your issue to the makers of cotton and other machinery, of a circular letter drawing attention to the importance of properly guarding dangerous parts before sending out the machinery.

As showing the confidence placed in the advice of the inspectors in matters of fencing, the following extract from the newspaper report of the 1900 show of the Bath and West of England Agricultural Society will be of interest :--

"The machinery in motion becomes an increasingly important feature of the implement section year by year, and this year is no exception to the rule. The increase is largely accounted for by the considerable number of firms who have taken up the manufacture of gas and oil engines, not a few of the recent comers being leading machinists in the western counties. As most of these exhibits consist of motors in action, with the necessary complement of fly-wheels, belting, pulleys, &c., all rotating at considerable rates of speed, their presence in a crowded show-ground might be attended with some danger if it were not for the precautions taken by the exhibitors at the instance of H.M. Inspectors of Factories. By arrangement between the Home Office and the Showyard Committee, a semi-official visit of inspection was paid to the show ground yesterday by Messrs. C. R. Pendock and S. Shuter, who, accompanied by the yard stewards, made a tour of the machinery and made certain suggestions, which will doubtless meet with a ready response from the exhibitors concerned. Considering the amount of heavy machinery which is yearly brought to the showyard and placed in position upon sometimes very awkward and unsuitable ground, it is astonishing to learn that serious accidents are practically unknown in the history of the society, a fact that speaks well for the excellence of its arrangements."

Mr. Blenkinsopp (*West London*).—Considerable progress has been made in guarding wood-cutting machinery. Guards for circular saws have been put up in very many works, but some of these are not suitable to the kind of work done in the particular works in which they are placed, and are, therefore, useless. Nor is it easy to fix any kind of guard when rough English timber is being sawn. At one part of the trunk the saw is considerably exposed, at another spot, when a large branch has been cut off, the saw is buried in the wood. For this class of timber a rack saw should be used.

Overhand planes are now being more frequently protected, but still there are accidents. If a man has a board to plane, he adjusts the guard to the width of the board when it is flat. Having planed both sides of the flat board, he then turns it on edge to plane the edges without re-adjusting the guard. Consequently a considerable portion of the cutters is then exposed.

Mr. Hoare (*East London*).—I find fencing fairly good, and the workman most often to blame for its not being on, is the engineer, he undervalues danger, and has a weakness for running risks rather than exercise his ingenuity to protect his fellow-workers from harm, by guarding dangerous or exposed spots.

Circular saws constitute an inspector's bugbear, the users condemn all guards because none are perfect, and they are in his way, or cause him delay in doing his work, he prefers running the risk, knowing that compensation will follow any severe accident. By warnings and threats I am getting all unguarded saws, where guards are possible, guarded, but cannot yet get employers to order guard and saw at the same time.

Employers, too, have a bad habit of running new engines before guards are ready, and they wait for a visit from their inspector, rather than ask for one when new machinery is put down.

Captain Bevan (*Southampton*).—Fencing of circular saws is pretty general in this district. I had one prosecution last year for not fencing a circular saw—no person injured; conviction, penalty, and order to fence within 21 days, under a fine of £1 per day after expiration. The same occupier, at another saw mill in another part of the county had, within a month of this conviction, a bad accident to a man employed on a circular saw; no guard; convicted in January this year; same penalty, with no order to fence.

A fatal accident from a circular saw occurred, in which the deceased (aged 65) refused to use the guard provided. He was employed at a paper mill in Dorsetshire, and was cutting up firewood for the occupier, being "small stuff" there could be no excuse for his not using the guard—a good one. I visited the place *after* the accident, Mr. Wilson *before*, he advised the guard, which would have prevented the accident, as the wood came back over the top of the saw and struck the man in the stomach.

The manager of a clock factory, lately established at Salisbury, and where several hundreds of hands will be employed, requested me to caution the women not to wear their hair hanging loose when working on machine lathes. I told him it was hardly within my province, but

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would be pleased to help him. I found about six girls, under 18, busy working amongst belts and cogwheels, with their hair loose; they promised compliance with my advice.

I have found this custom of late years common, where females are employed in lithographic printing works. The foreman of a large printing establishment complained of the trouble he had in this respect.

Mr. Vaughan (*North London*).—In connection with, and arising out of the subject of accidents, comes the question of fencing. Employers generally are ready and anxious to adopt any suggestion, even when it goes beyond what we have statutory powers to require; although occasionally objection is still made on the ground that it was not required by previous inspectors.

There is a very large number of lifts in city warehouses as well as in factories, and the question of their fencing is as difficult as it is important. It is very often impossible to adapt to existing lifts the only really satisfactory means of protection, *i.e.*, automatic gates; whilst, on the other hand, it is difficult to refuse to accept ordinary gates or doors, which can be opened or raised by anyone, as a sufficient compliance with the terms of the statute. Until, however, some more efficient fencing than these is obligatory accidents, often fatal, will continue to occur. Every lift should have an attendant of a sufficiently mature age, and where gates or doors are used they should never be less than 5 ft. 6 in. in height.

I drew attention last year to the desirability of more fencing being done by machine makers, and in this connection I hail with satisfaction the recent circular of H.M. Chief Inspector on the subject, though so far I cannot observe much advance on the part of manufacturers in the desired direction. This is evidently the case with regard to printers' engineers, a large number of small points in connection with printing machinery being left unguarded until an inspector asks for a guard, which is often after an accident has drawn attention to the matter. I might instance the cog-wheels on cylinders of Wharfedales and kindred machines, which are usually only partially guarded when delivered to the user; and such partial guards only increase the risk of accident by inducing a false belief in the absence of danger, and encouraging a man to rest his hand upon the guard. A number of accidents have occurred from these cogs during the past year, and on one occasion when a case under the Workmen's Compensation Act followed, a printers' engineer gave what was considered by the court as expert evidence, to the effect that it was impracticable to completely guard those cogs, thereby securing a verdict for the employer. I trust that in the near future something more may be done to compel machine makers to give more attention to fencing. I understand that machinery for exportation is much more efficiently protected than that intended for use in this country, Continental buyers being more exacting in their requirements.

Mr. Pendock (*Bristol*).—There can be no question in my mind that much improvement has recently taken place in the fencing of machinery, a tendency that I have many reasons to believe will be maintained for some time to come. The improvement can be accounted for in many ways, amongst which are probably the following:—

1. Increased stringency of legislation. The provisions made for safeguarding human life in the Factory Acts, the Workmen's Compensation, the Employers' Liability, and the Chaffcutters' (Accidents) Acts are much more comprehensive now than a few years since, and users of machinery are compelled to pay correspondingly more attention to the subject.

2. With increased powers, and their accumulated experience derived from the investigation of accidents of all sorts and descriptions, H.M. Inspectors have been able to exercise much wider latitude in the making of recommendations for safety, and, where moral suasion has been fruitless, they have been possessed of greater authority in giving weightier effect to their suggestions.

In this connection, however, it is only fair to say that nine employers out of ten will cheerfully comply with the bare suggestion of an inspector (especially when backed up by a circular in which the suggestions are outlined) without the application of any greater pressure being resorted to.

In a word, H.M. Inspectors have in this respect the complete confidence of the vast majority of occupiers, and advice is commonly extended by the one and accepted by the other in a perfectly friendly and cheerful spirit. There are exceptions to this of course, but it is a comforting fact that many occupiers welcome the visit of the Factory Inspector as of a friendly adviser rather than as an inquisitorial official. Sometimes, indeed, this tendency is stretched to an embarrassing and dangerous degree; for an occupier, attaching great importance to the inspector's opinion, will endeavour to shirk the duty of immediately fencing a new machine or a new installation of machinery until he can get the inspector to see it and pass his plans. It is obviously impossible for an inspector to be thus at the beck and call of all occupiers in his district, and it cannot be too widely repeated that the responsibility of fencing machinery rests with the occupier alone from the day when it is first set in motion in his factory.

3. The introduction of so much foreign machinery into our factories has also helped in the direction of safety. Machines of Continental and American make are, generally speaking, much better guarded (though not always safer in construction) than our own. Consequently English makers are beginning to see the advisability of imitating Continental and American methods, and this they are more obviously doing every day.

In the Bristol district there is a surprising amount of foreign machinery in use. The larger the industry, and the more flourishing it is, the more certain you will be of finding that it is carried on by the aid of imported mechanical devices.

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There is in Bristol the largest and one of the best-constructed electric power stations at present in use in the kingdom. It generates the power for an unusually fine service of electric trams, and its machinery, plant, and even a considerable portion of the actual building, have all been supplied by American contractors. In the chocolate, tobacco, boxmaking, boot-making, clothing, printing, and other flourishing trades in the West, some of the best-equipped factories are full of machinery either of foreign design and construction or of attempted English imitations of foreign designs. I heard a large user of machinery say not long ago that he had ceased to "look at" an English machine, and not one remained on his premises, so much did he consider them inferior to German and American products of a similar kind. Fortunately, signs are not wanting that English makers are becoming alive to their shortcomings in this respect, and are beginning to bestir themselves in the right direction. The makers of boot machinery, for instance, not only guard their tools better than they used to, but they also make provision for the removal of dust from machines where any quantity is generated.

A marked improvement is also noticeable in the construction and safeguarding of English lathes and engineering tools generally, especially such as are automatic, or nearly automatic, in action. Some of the more recent designs are models of compactness, safety, and good workmanship.

An innovation introduced by H.M. Chief Inspector is, in my humble opinion, one likely to be of great practical service in the collection and dissemination of useful information on the subject of safeguards. I refer to the issue in November last, of the first of a series of safeguard illustrations, by which each district inspector is to be periodically made acquainted with the latest known designs of unpatented safety appliances. It must often happen that an inspector in one district, may feel the urgent need of a simple and reliable preventative for a constantly recurring danger, when at the very same time in another district, another inspector may come across an invention or contrivance which practically solves the difficulty. Obviously it will be of great advantage to bring these two—the seeker and the discoverer—together, and the "monthly circular" now instituted, forms a most suitable and convenient medium for the purpose. Perhaps, after a while, it will be found possible to issue the illustrations to junior inspectors as well as to district inspectors, and this will still further increase their utility.

Mr. Harston (*Kent*).—One of the most useful purposes served by the accident register is that of enabling an inspector to see in which direction his efforts are most needed. There can hardly be any other branch of duty to which he can apply himself, with the possibility and probability of rendering more valuable service, than that of endeavouring to lessen the perils which, unfortunately, so commonly beset industrial life; and yet, with the thousand and one other duties expected of him, the proportion of time—looking at the importance of the work—he is able to devote directly to that end, is lamentably small. If it were possible for the whole staff of inspectors to leave everything else alone, or give only subordinate attention to other less important work, say for twelve months, and practically give their whole time to this object, the result would, I venture to think, be one of which the department would have reason to be proud. How many of the machinery and other accidents registered in a year, could have been prevented, is a question which, inevitably, forces itself on one's mind. Going through the record one cannot fail to see accident after accident which never ought to have happened, and which never would have happened if reasonable precautions had been taken. The responsibility for this does not, of course, rest with the inspector or the department. As a rule it is either the employer or the employed who is in fault, often both. To the scepticism, or only a half-hearted belief in the efficacy of safeguards, on the part of the master, the mishap may frequently be traced, and still more frequently to the obstinacy of the workman, but, whatever the cause, accidents continue with appalling regularity, and the great point to consider is how to prevent them. The answer seems to be closer inspection and more frequent visitation. In my own case, which is probably typical of most other districts, I have not been able to visit, in 1900, one-third of the factories. Very few check visits have been paid to see if the fencing or other safeguards asked for have been provided. Occupiers are frequently indifferent, and, from a variety of reasons, fail to realize that safeguards are imperatively called for. The result, too often, being that compliance with the inspector's request does not get beyond a pious intention to see to the matter on some convenient occasion. If it does, the conclusion to which he, in all probability, comes, is that it must be of very small importance, as the inspector has not even considered it necessary to call again to see if the request has been attended to, and little or no care is taken to see that the fencing is maintained in an efficient condition. If a second visit could be paid within a reasonable time, it would, in my opinion, have a very wholesome effect, and if a prosecution were deemed necessary would materially strengthen the case. The feeling against the fencing of circular saws has been very strong, and has not yet by any means been entirely overcome. The difficulty is more often than not with the sawyer. He insists that the danger is increased by the guard, but this view is not of course supported by the accident returns. I can point to at least half a dozen circular saw accidents this year which would never have taken place if one of the many guards which have been approved had been fitted. An accident occurred to one of the principals of a firm of builders. Working on a Saturday afternoon after all the workmen had gone he removed the guard and made use of the saw in an unfenced state, the result being that his hand came in contact with the revolving disc and was seriously injured. If the guard provided had been used it would have been impossible for the accident to have occurred. On the other hand, I have never investigated any circular saw accident which could in any way be proved to be due to the guard. Such a contention was, however, sought to be established recently by an injured sawyer, and his employers reported that the accident was entirely due to the guard. On investigation I found, as I had anticipated, that instead of there being too much fencing

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there was too little. No riving knife had been fitted, the timber had pinched at the back of the saw, and had been thrown against the sawyer, striking his finger with such force as to actually knock it off. The absurd contention of the workman was that the guard had somehow prevented him getting his hand away. A new factory was recently opened and a large amount of machinery erected, including some particularly dangerous moulding tools. The workmen had been mostly brought from London, and objected to fencing on the grounds that it hampered them in working, and increased the danger. It was done nowhere else, and if they chose to run the risk they had a perfect right to do so. A prosecution seemed inevitable. The principal would give no undertaking to fit guards to the machines. He had no faith in them, and had insured against accidents. This and much more. Have your workmen agreed to absolve you from responsibility in case of accident, I enquired? There was no necessity, the policy covered. Yes, I replied, but only on condition that your machinery is securely fenced. The point was obvious to him, and there was no need for a prosecution. I have since received a letter from the firm stating that all the safeguards asked for have been provided. Much misapprehension appears to exist amongst employers as to the terms of their insurance policies.

Mr. Shuter (*Plymouth*).—I am glad to be able to report that occupiers are generally very willing to adopt any suggestion I make with a view to more securely fencing dangerous machinery, and I am hoping that before very long we shall arrive at some sort of finality as regards fencing of flywheels, shafts, cogs, &c., &c.

I am glad to note that every year, more machines are being sent out from the makers, with their dangerous parts already guarded. This is as it should be; for there is nothing an occupier objects to doing more than disfiguring a new machine by drilling holes and fitting an often ugly looking guard to it, whereas the makers are able to make the guard cheaper, of better appearance, and more effectual. I have recently seen some drilling machines with their bevel wheels and lathes with their back gearing, fitted with neat guards by the makers, and if only this principle could be enforced in the case of all dangerous parts of machines, a great number of accidents would be prevented, the task of the Inspector would be lighter, and the chief source of friction between him and the occupier would be removed.

I have made a point of asking occupiers to fence cogs, &c., of machines driven by hand or foot, *i.e.*, drilling machines, presses and cranes, since I have known accidents to happen at such, although at the same time I have reminded them I have no power to compel them to do so, and they have always carried out my suggestions willingly.

Mr. Butler (*West London*).—Although we meet from day to day better arrangements for starting and stopping a machine, it is possible to make the appliances too easy, as the following description of an accident will shew. An ordinary guillotine or paper cutting machine in a bookbinding works, was fitted with the starting handle, quite close but outside the front edge of the cutting table. The machine was of the latest pattern and the knife descended on the slightest downward pressure applied to the handle. The attendant was setting some books for cutting, and for this purpose was obliged to put his hand beneath the knife. Whilst doing this the knife descended and the poor man lost his hand. Whilst concentrating his thoughts on setting the books, his body had accidentally touched the starting handle. I now require this kind of handle to be well shielded with a piece of strong sheet iron.

A large number of accidents at moving machinery may be indirectly attributed to the want of fast and loose pulleys with proper striking gear on the machines. Parts of a machine often require adjustment or perhaps some accumulation or obstruction is required to be removed, and various other reasons necessitate the worker putting his or her hand near a dangerous part. These parts which might be well within the machine, are not always patent to the inspector as being dangerous, and in many cases it would be difficult or impossible to fence them if they were.

Without proper starting and stopping arrangements, dangerous machines are left running when they should be still, or belts are put on and thrown off while the machinery is in motion, so increasing the liability to accidents. In one factory I counted ten circular saws with no striking gear or fast and loose pulleys. I give two instances, and there are very many others, in which the injury might have been prevented if proper fast and loose pulleys had been provided.

1.—A man was putting the fibrous casing of a cocoanut through the small spring rollers in front of a tearing machine. Some of the fibre lapped round the top roller and he attempted to remove it. In doing so his hand was drawn in and lacerated by the teeth on the carding cylinder.

2.—A man whilst adjusting the packing in a circular saw bench, lost two fingers by coming in contact with the back of the saw. The saw was guarded as much as possible.

No fast and loose pulleys or other arrangement were provided in either of these cases, and the men were compelled to choose between two dangers, either throw the belt off, or do what was required whilst the machine was in motion.

Mr. Ireland (*East London*).—There is still among occupiers too much waiting for the Inspector to call before fencing of new machinery is proceeded with. I have investigated two accidents during the year which occurred in new machines before guards had been fitted; the first one after a day's use, the second after the machine had been in use for a week. Occupiers do not seem to understand their responsibility to fence their dangerous machinery before putting it in use. I have still to record carelessness in using guards, such as those for circular saws and the change wheels of lathes. The latter is in many cases due to a badly designed guard, it being too clumsy and unwieldly to be easily removed. In the former, the fault is in many cases due to the guard being too large for the saw, the occupier in purchasing it ordering

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one for the largest size of saw, instead of for an intermediate one, with the consequence that when the saw gets much worn the guard cannot be adjusted to fit. A large proportion of the fault, however, lies with the workmen; whilst in some shops (packing-case makers particularly) the guards come to within ½ inch of the saw all round, in others the space will vary from 2 inches to 6 or 7 inches. To enforce as far as possible the requirements to constantly maintain the fencing in an efficient state, and the prohibition of cleaning dangerous machinery in motion, &c., the occupiers of one of the largest factories in this district have adopted a monthly examination of the machinery and the fencing for same, and a monthly instruction and warning of the men employed about the machinery by the foremen of each department and the engineer of the works. I append a copy of the report form which the foreman and engineer must fill in and sign after each monthly examination. This system has the advantage of periodically impressing on each man the importance of these matters. It has had good results, and deserves more general adoption.

"REPORT BY ENGINEER OF DEPARTMENT.

NOTICE.—This Report to be presented at the Engineer's Office the First Monday of each Month for confirmation, afterwards to be left at the General Office.

I have examined the Machinery under my care in ..... Department, and find it in ..... condition, the working parts are all CAREFULLY AND SAFELY GUARDED against causing injury to the workmen employed.

I have this day interviewed the Oilers, Greasers, Strapmen, and Machinery attendants employed under me, I have carefully defined to each man his particular duties, and have enforced the faithful observance of the Printed Instructions posted in the Department concerning Machinery in Motion.

Signatures

Thames Sugar Refinery,
Silvertown, E."

I have investigated during the year two fatal and two non-fatal accidents caused by plain revolving shafting. In one case the deceased was placing a belt on a pulley, and in the other was oiling an overhead shaft bearing by means of a ladder. All four accidents were due to the clothing becoming entangled with the shafts.

It is astonishing the amount of ignorance which still prevails among occupiers, &c., regarding the danger of plain revolving shafting, and in the case of many who are aware of danger, they are of opinion that it lies in a shaft being near some fixed structure and not in the shaft by itself. Very few seem to understand the fearful injuries that a plain revolving shaft can inflict.

In one fatal case which I investigated the injuries were really frightful. The shaft was 3¾ inches diameter and running at a speed of 58 revolutions per minute. The clothing was drawn in so tightly as to break practically all the bones in the upper part of the body, and part of the clothing in being drawn over the head was under such a high tension that it tore off the scalp, carrying with it also the whole of the face covering, and in such a way that these parts could be laid back on the skull again like a mask. In another case a man was caught when oiling a projecting shaft about 12 feet above the floor. Luckily in this case the clothing gave way, and the man was thrown to the ground practically unhurt, with nothing but a single sock on. Two other non-fatal accidents I investigated during the year were in the same lucky way (by the giving way of the clothing) prevented from being fatal, showing that even the wearing of shoddy has its advantages sometimes. Instances can be multiplied, yet it is difficult to persuade those working among machinery of the danger which lurks in the seemingly harmless shaft.

At a police court in this district the defendant stated that his shafting could not be dangerous as it was only running at about 400 revolutions per minute! And the presiding magistrate had some remarks to make upon the "officiousness of some Inspectors." Experienced engineers, who one would expect would be better informed, are often the greatest sinners in this respect. What the limit of safety is it is difficult to say. I used to consider under 40 revolutions per minute as safe, but I have lately come across two accidents with small shafts running at only about 14 and 19 revolutions per minute respectively. The limit of safety is undoubtedly lower in the case of small shafts. It is very often stated when I am asking for fencing of a shaft that "the couplings have been covered so that there are no projections left," but I am firmly convinced that unless in the case of fairly large shafts (say over 7 inches diameter) running at a low speed, there is as much danger in the plain parts of the shafting as there is in the projecting nuts or bolt-heads of the couplings, for while there may be under certain circumstances greater risk of a projecting nut, &c., catching the clothing of the workman, the hopelessness of escape is very much greater in the case of the shaft itself. Under certain circumstances the smoother the shaft the greater the danger, for in the case of a smooth shaft there is a greater likelihood of the air being removed from between the clothing and the

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shaft, forming a vacuum there, when the pressure of the atmosphere gives a force of 15 lbs. on every square inch of the cloth in contact, dragging the person round the shaft. Mr. Hoare mentioned to me one fatal accident which he investigated where the palm of the hand had thus come in contact with the shaft, forming a vacuum in the space between.

It is seldom now that one finds the bevels of a drilling machine unguarded, but there seems a disinclination in many cases to recess the pin-heads in the drill socket or chuck, and in the cases where arrangements have been made for proper "flushing" of the pin-head the machine man will often use a pin which is too long to save a little trouble in getting the proper one.

I investigated cases of two broken arms in one engineering works in the same week through neglect of this simple precaution, the sleeve of the driller in each case becoming entangled in the socket pin-head, with the consequence that the arm was carried round the drill.

In too many cases are single rails provided as guards for engines and machinery. One fatal accident occurred during the year through the workman falling under the single rail provided, and two accidents occurred to enginemen through their falling in a similar way into the crank race of the engine, the crank as it came round crushing their arms against the bed-plate.

Mr. May (*Bristol*).—Fencing of machinery appears to me to be fairly satisfactory, as far as I have been able to judge. The fencing is in most cases supplied by the occupier, and if not in its place, has been removed by the workman and not replaced. This is especially noticeable in the case of circular saws, the men constantly refusing to use the guards in spite of repeated warnings by occupiers and foremen.

I have noticed several dangerous shoots to the rolls of brick machines and similar machines and it is very often extremely difficult to fix a satisfactory guard over the opening. I would suggest that it be made illegal in future to erect such grinding machines less than, say, 3 ft. 6 in. below the floor or platform from which they are fed, *i.e.*, that the rolls should not be less than that distance below the floor.

Mr. Fearon (*North London*).—Users of circular saws do not seem to realise that a riving knife is an absolutely essential part of a good saw guard for ordinary work, and that every guard without one should be immediately condemned. That it is an essential has been proved to me this year at the inquest of a sawyer who was killed for want of one when cutting a piece of wood about four feet long. The back teeth caught the wood when half sawn, raised the far end, drove the whole piece straight back with the near end still on the bench, and killed the man. A riving knife is also an essential to protect the taking-off boy from the back teeth, and in wooden box factories, where the wood is not so long as the diameter of saw and ground off saws are used, these back teeth should be further protected with a thin sheet of copper on the side from which the boy takes the cut board.

Sawyers nearly always turn back the nose piece of the guard, as they cannot see their work well when it is in position; they thus leave the front half of the saw with no protection against a man falling on to it. This danger can be avoided by having the front part of the guard split like two fingers, with the saw revolving between them, as there is then no difficulty in seeing the work.

In laundries two points in the machinery are especially dangerous and difficult to guard, namely, the intake of wringer rollers, in which hands are caught and badly crushed, and the intake of calenders, in which hands are crushed, smashed, and burnt. Wringers can to a great extent be made safe by the addition of a moveable roller well up in front of the intake of the rollers, or by the addition of a really long hopper. Calenders can also be protected to a very great extent by safety bars, or in those where the work is gripped with a lip by the addition of a false lip, which can be pulled back if a hand is caught, being only held in position by a spring. These, however, are only partial safeguards and have not been in use long, so that the greatest attention of the department and laundry occupiers is required to discover some really effective means of protecting these two points.

Mr. Owner (*South London*).—During the past year there have been several very serious accidents from power presses. In several cases proceedings were taken against the firms, and substantial penalties inflicted. Most of the firms, and those the largest in the trade, have given the subject of guarding most careful attention. The result is that at present guards are now fitted for every operation. This has necessitated a large amount of care and no little ingenuity, and in the case of "drawing" a partly made article great exactness was required in feeding and holding it in the exact position for the die. Mr. Hughes, of Grant & Co., Riley Street, Bermondsey, has, however, devised an adjustable stop for fitting on the bolster of a press, and he has kindly offered to show it at work to anyone who cares to see it. He also invented a throw-out device which is perfectly automatic in action and very simple. This he is also placing freely for use, and I hope to obtain drawings shortly. At the largest tin box factory in the borough of Southwark the presses are excellently guarded, and there has not been a power press accident for nearly six months. Yet with this careful guarding there has been no interference with the firm's output.

Woodworking machinery is generally well guarded, and the workers seem to appreciate the effective guards. Many experienced men have told me they would not now work without the protection which a good guard affords.

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Mr. Johnston (*West London*).—One of the worst accidents from circular saws in this district occurred at a saw which I had requested should be fenced a month previously. A guard had been ordered by the firm, and would probably have been fixed and prevented the accident, had not the sawyer himself, who lost an eye, made strong objections to using any guard.

There have been several serious accidents from hoists. In one case a boy, who had been told not to go near the lifts, started up in one of them from the ground floor. The lift was provided with excellent automatic gates, and the cage was open only on the front side. As soon as the cage had risen about five feet, and the gate had closed, the boy must have stepped out on to a bar which was fixed across the frame in which the gate slides up and down, and then tried to get back, for he was found hanging with his head crushed between the floor of the cage and the sill of the landing above. This accident shows the necessity of all lifts being enclosed by a smooth sided casing from top to bottom, whether they have automatic gates or not.

A starting rope gripper may be arranged so as to come into action the moment a pedal, on which the attendant keeps his foot, is released ; or it may be worked, in the case of a lift used for goods only, by a flat iron bar, hinged at one side of the cage, which must be kept down to allow the lift to work, but on being raised, for the purpose of removing the goods, throws a grip upon the starting rope, when it is impossible for the cage to move either up or down.

I have satisfaction in remarking that the gradual introduction of electric driving is doing away with a good deal of dangerous mill-gearing.

Mr. Allhusen (*North London*).—The majority of accidents which have come under my notice, have been those resulting from circular saws. In almost every case these have occurred on the front on the saw, and have in general been due to the momentary inattention (due to some slight distracting influence) of the sawyer to his work. In the few cases which happened at the back of the saw, the accident took place through the excessive zeal of the lad employed in drawing out the wood—reaching too far forward, and touching the back of the saw with his finger.

In one of these cases the riving knife was at too great a distance from the saw, a point of some importance. Among the reasons for rejection of the guards in use, I have noticed more than once that the riving knife was considerably too thick, so that, in cutting soft wood, the passage of the wood was obstructed, and the guard could not be used. It is essential that the riving knife should not be thicker than the saw.

Again, one of the chief difficulties to be contended with, is the unwillingness of the workmen to keep the safeguards affixed. In times innumerable, I have entered the engine-room of a factory, to find the guards for the flywheel, crank shaft, &c., thrust away in one corner, the engine running unprotected. The excuse of the engineer, invariably, is the same. He had to remove the guard for starting purposes, and didn't put it back : "You see, sir, no one comes in here but myself," as though he were proof against accident I am pleased to see, however, that, where the roof of the engine house is high enough, the wire slide, which can easily be removed for starting purposes, and immediately replaced, is largely superseding the old, and frequently dangerous single bar or rail of gas piping, inside which the engineer, of necessity, had to go, to take hold of the wheel in starting. The utility of the fixed guard in front of the crank of the engine is also being recognised, both for its services as a protection to the starter, and in preventing the splashing of oil.

Mr. Seymour (*South London*).—Fencing of machinery is now being brought to great perfection, although only rarely can it be said that absolute safety is attained. I do not find that employers are as a rule hostile, but are ready to listen to reason, and are often glad to obtain information which will ensure a greater degree of safety for the workers. An efficient circular saw guard, which can be used when rough irregular timber is being cut, has yet to be invented, but I believe, that when a good one really appears it will be equally welcomed by the employers as by the inspectors of factories.

I am now asking that all revolving projections, such as heads of keys, set-screws on spindles and similar parts, may be cut off wherever possible, and in many cases this can be done ; as an alternative an efficient guard is ordered to be provided.

A very important matter, and one that cannot be too frequently urged upon occupiers and users, is the necessity for a thorough and systematic inspection, testing, and annealing, of all chains and wire ropes used for hoisting purposes. I have recently attended two inquests, where life has apparently been sacrificed by want of care in this matter, although negligence may be too harsh a term to use, yet a want of definite instruction as to the amount of wear to be allowed in a chain before rejecting it for use, can hardly be called by any other name.

Dangerous Trades, Special Rules.—So far as Special Rules are applicable to works in the Southern Division, I think I may claim that full attention has been given to them, although the majority of the works have not been visited four times in the year. The works under Special Rules are principally aerated water works, brass casting shops, paint and colour works, chemical works, potteries, electric accumulator works, white lead works, lead smelting works, india-rubber works, and lucifer match works. Special attention has also been given to works in which bronzing is done or metallo-chrome powder used, and to glass polishing, paper-staining, and galvanizing works. *Dangerous trades.*

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The number of cases of lead poisoning notified was 432, but some of these proved to be wrongly reported or not contracted in a factory or workshop. Three cases of mercurial, three of arsenical, and two of phosphorus poisoning were notified, as well as nine of anthrax; the last-mentioned contracted in hide and skin works or in works in which hair is used.

The Lucifer Match Works Special Rules were amended during the year, and settled by arbitration. But the most pleasing feature is that one of the largest firms has discontinued the use of yellow phosphorus, and others are following the example, so that in time it is to be hoped that Special Rules will not be necessary, and that "phossy jaw" will be a thing of the past. This is an indirect and probably unforeseen result of the enforcement of Special Rules and requirements in dangerous and unhealthy trades similar to that in the enamelled iron plate works, in many of which the use of lead has been discontinued rather than submit to the restrictions of the rules. Whether such a result would ever have been brought about without the action of the Home Office under sections 8 to 12 of the Act of 1891 is open to doubt. The result, however, is wholly to the good. I have pleasure in drawing attention to the following reports from members of the staff on the subject of dangerous trades. An interesting instance of the value of the requirements as to medical practitioners notifying cases of lead poisoning which came under their notice is stated below in Mr. Wright's report; a new colouring matter introduced into the making of boots caused lead poisoning in three cases, was analysed at the Government Laboratory, found to consist almost wholly of salts of lead, and as soon as the manufacturers were warned of the danger they gave up its use.

Mr. Blenkinsopp (*West London*).—What I may call an experiment of a very interesting nature has been for four or five years carried on near Willesden Junction. This firm has till lately gone under the title of Bischof's White Lead Syndicate.

Last December it was introduced to the public as a limited liability company with a considerable capital.

The new process is an attempt to make white lead without danger to the workpeople. There are no blue beds or white beds as in the old Dutch process. The blue lead is put into closed furnaces, and when melted runs out into other furnaces, from which it comes out in the form of litharge. This is treated in various ways, and when taken up in elevators it is enclosed in dust-proof cases. By the time the substance becomes white lead it is in a moist condition, and remains so during the rest of the treatment, and, being mixed with oil, it is still moist when packed in barrels. There is, therefore, no white lead dust at any time, and the manufacture of white lead by this process must be safer than by the old process. Whether it has been or will be a commercial success I, of course, cannot say, but I observe by a newspaper notice that Mr. Bischof claims that the cost of production is less and the white lead is of better quality by his process.

Mr. Vaughan (*North London*).—A continual stream of reports of lead poisoning comes in from medical practitioners, and in very few cases is their investigation attended by any beneficial result. Many of these cases are found not to have occurred in a factory or workshop. Some have occurred in well-known factories where the washing accommodation is ample, if it were only used, and no light is thrown on the prevention or causation of the attack. Occasionally of course the value of these reports is proved by the discovery of insufficient precautions or unnecessarily dangerous processes.

Several cases of mercurial poisoning have occurred in connection with thermometer making. Unfortunately the conditions under which this trade is carried on are most difficult to tackle. A weekly tenant or at any rate an employer in a very small way of business, carries on the work in a shed in the backyard, with the assistance of three or four men who are most intermittent and irregular in their attendance. How is it possible to exact or expect much under such conditions? A pail or trough of cold water in the yard, is about the extent of washing accommodation which can be looked for, and the arrangement of the workshops (save the name!) does not lend itself to ventilation, cleansing of floors, or any suitable precautions.

In places subject to special rules, washing accommodation is generally fairly good, and in other places occupiers very seldom object to supply cold water. More difficulty arises in regard to a supply of hot water, which necessitates special and perhaps costly arrangements. At the same time hot water is, I think, essential for cleansing purposes, apart from the unattractiveness of cold water at any rate in cold weather. Unfortunately the greatest difficulty is experienced in inducing the workers to make use of the accommodation supplied. It is therefore most important that it should be accessible, and, so far as is possible attractive. A man will not go out of his way to wash in a pail of cold water.

I should be very glad to see the provision of washing accommodation made obligatory everywhere, and possibly, if it were an universal requirement, workers would gradually be educated to realise its value and importance.

In the majority of cases of lead poisoning, which I investigate, dirty habits are alleged as a principal cause of the affection both by employers and doctors.

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Mr. Shinner (*Norwich*).—Objection is still taken to the mineral water rules in some factories, more especially in those factories where the operatives are always and constantly at work. Small works do not object; the reason being that ill effects, if any, are practically not felt to anything like the same extent. One accident occurred during the year which it was feared would cause loss of vision to a man who was "carrying" aerated waters.

Mr. Wright (*Northampton*).—Showing the value of the Factory Act, 1895, section 29 (1) three notices of lead poisoning occurring to work-people in the boot trade, which would not otherwise have come under notice, have been reported in this district. The persons in all cases were men employed in the finishing of boots by hand. In this process of finishing it is necessary to stain the sole and heel of the boot with some colouring matter, china red in two cases, and in the third a mixture of china red and chrome yellow had been used. The actual mode of procedure is as follows:—The china red, in a dry powder, is contained in a small shallow vessel, a piece of sponge is used to dust the powder on to the sole of the boot, fine glass paper then scoured over the surface of the sole to work the powder into the leather, grease smeared on and the sole polished with a dry cloth. During the whole time this dusting and scouring is carried on the workman, who is bending his face closely over the boot, must inhale a quantity of the dry powder.

The analyses of the powder by Dr. Thorpe gave as follows:—

China red consists of the basic chromate of lead = $PbCrO_4$, PbO, and contains 81·6 per cent. of oxide of lead.

China red and yellow chrome mixed = $PbCrO_4$, $PbSO_4$, and contains 4·21 per cent. of barium sulphate.

Yellow chromate of lead contains 69·0 per cent. of oxide of lead.

With the exception of 4·21 per cent. of barium sulphate, the pigments are wholly salts of lead.

On making further enquiry it was found that the same process was carried on in a number of boot factories and workshops in the district, but on calling the attention of manufacturers and workpeople to the dangers of this method of staining, it has been given up and a harmless vegetable substance substituted.

These cases were reported in April last, and no others have come to my knowledge since.

Mr. Butler (*West London*).—There are a number of paper-staining works in the district, and the observance of the recommendations of the Home Office Committee have been urged upon the occupiers. Most of them agree to do something, and several firms have taken some pains to reduce the temperature of their work-rooms and provide dining-rooms and washing accommodation. On interrogating occupiers as to the amount of lead colours used, they invariably answered that they did not think any contained lead. In fact, they seemed quite ignorant as to the actual composition of the colours used. On submitting four samples to the Government analyist, I was informed that they all contained lead, one sample of yellow chrome contained lead oxide (PbO) to the extent of 78 per cent., thereby shewing washing conveniences to be compulsory.

Mr. Harston (*Kent*).—Eight cases of poisoning by lead, and one by mercury have been reported during the year. All of these with one exception (which did not appear to call for enquiry) have been investigated. In five out of the eight works in connection with which the lead cases occurred, washing convenience appeared to be inadequate, and the necessary provision was requested. One of the cases I regret to say terminated fatally. It was that of a young person 15 years of age who was put to do odd jobs in a plumbers and painters shop. The workshop was a very small one, and there was no provision specially made for washing immediately connected with it; but all the workmen stated that they had unrestricted access to the scullery at the occupier's house, only 20 yards distant from the workshop, where hot and cold water, and all necessary convenience for washing existed. It appeared that the boy occasionally did a little painting, but was mostly employed on other work. Frequently he had dinner at his employer's house, and was warned against the habit of eating food with unwashed hands. He had no parents but his guardian upon whom I called, stated that he was of very uncleanly habits and sometimes complained that his employer was always scolding him for not washing.

The case of mercurial poisoning occurred in connection with a factory in which powders, jellies, &c., are manufactured, the patient being a woman. The attack was only a slight one and was contracted during the process of quicksilvering trays for jellies. The work consisted of rubbing trays by hand with quicksilver with the object of preventing the jelly from sticking. On enquiry there appeared to have been one or two other slight cases of the same kind, but the firm did not appear to be aware of them. The process is only carried on once or twice in the year, when about four or five gross of trays are mercurized. Washing convenience was provided, but there were no nail brushes, and the supply of soap seemed insufficient. Improved washing arrangements were promised. The certifying surgeon in his report expressed the opinion that the crude process employed must be injurious to the general public using the jellies. I suggested this possibility to the firm, and also the need for further precautions for the workers, and have since received the following communication:—

"Since your visit we have been considering the matter of mercurizing trays and think that perhaps for the future we may adopt some other method. We are not, however, at the moment

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in a position to say that we can do this, as it will necessarily involve a good deal of work, and many experiments to ascertain what method is most suitable for the purpose. As we shall not require any of this work done probably for six months, we hope to get the matter settled long before then, and you may rely upon our doing all in our power to make the process as satisfactory from a health point of view as possible."

Mr. Shuter (*Plymouth*).—The workers in mineral water factories appear to be getting over their opposition to wearing the masks when bottling, and I think this is the result of the improvements effected in the masks themselves. Instead of the old pattern, clumsy and trying to the eyes, a more improved one is generally adopted; this is very light, rests easily on the head, and is fitted with a transparent front piece, so that the eyes suffer no inconvenience from its use. During the time I have been here I had made special inquiries amongst the potteries of Barnstaple and Bideford, and reported thereon to the Home Office. I found the workers healthy and generally attaining to a good age.

A number of colic cases were reported as occurring amongst the men employed in the construction of new ships in H.M. dockyards during the earlier portion of the year; and especial enquiries have been made by Dr. Legge, Mr. Jones, and myself. I am glad to report that improved washing appliances have been provided generally, and more lavatory accommodation is to be made as soon as possible for the use of the men employed on the fitting of armour plates to the new ships.

Mr. Ireland (*East London*).—The introduction of foreign labour into one of the white lead works was mentioned in last year's report as being the cause of an increased number of plumbism cases. Those men became more careful as they learnt by experience the importance of the observance of the Special Rules, and with the greater care exercised has come a corresponding diminution in the number of cases.

I investigated one fatal case. Deceased was first employed in lead only five months previous to his death. During the preceding seven years he had been a public-house manager, his previous employment having been in a wine cellar. He was an alcoholic subject, 47 years of age. In August, 1899, he started in the engineering department, becoming a lead maker in September. He was suspended on the 15th November, being bad with lumbago and having blue line. In a few days he had colic and constipation. He got better, and in three weeks he got a certificate of fitness, but the doctor advised him to give up the work. He, however, started the same work again on the 5th December. At the surgeon's weekly visits up to the 2nd January he was very well. On Saturday, the 14th, he had a fit while leaving his work in the afternoon, and was removed to the workhouse infirmary, where he died in the course of a few days. There was a taint of insanity in his family. He was subject to fits. He appeared to be careful while at his work to observe the Special Rules. The verdict found was that death was due to heart failure supervening on fits caused by lead poisoning.

Under the Special Rules, when stripping white beds, it is only the men engaged inside the stack in the actual process of stripping who are required to wear respirators. Frequently a man who is employed carrying the trays outside may take a turn inside the stack for a short time, and in doing so will very likely not take the trouble to put on his respirator. To obviate this, in a works in this district all the men in the bed gang are required to wear respirators, whether they are working inside the stack or not. This rule covers even the man at the washbeck. It also eliminates the risk of inhaling any dust which may be present in the damped corrosions, caused, perhaps, by the breaking of a piece of white lead which the water spray has failed to penetrate.

The Special Rules are now pretty well observed in all the works I have visited in which curing by carbon bisulphide is carried on.

At the inquest on the man who died through the effects of the explosion at one of the works in this district last year, the jury added a rider recommending that an air shaft ventilator, independent of the fan, should be provided. That such a shaft would have any effect in preventing an explosion in the event of the fan ceasing to work, or in inducing ventilation in a carbon bisulphide-laden atmosphere, is very questionable. Its chief action would be to treble or quadruple the work of the fan, as much the greater proportion of the energy of the latter would be utilised in pumping air down this shaft instead of exhausting the carbon bisulphide vapour from the curing chamber. It would of course act as a vent for the products of explosion in the event of such occurring, but it appears to me that this would be accomplished more effectually by providing a relief opening in the chamber, covered by some easily-ruptured diaphragm, so placed as to carry the products of explosion away from the workers. I suggested such an opening, covered with brown paper, at the largest works here, and this has now been done. The opening is on the top of the chamber, and the paper has been coated with some composition unaffected by carbon bisulphide vapour.

An accident occurred at a works here at a combined still and agitator, in which waste gutta-percha is purified by petroleum spirit, aided by heat. The apparatus is a vertical cylinder about 4 feet diameter and 8 feet high, provided with a manhole on the top.

After the process the manhole is opened and steam is blown through to expel the spirit. This was done twice at intervals of two days, and on the fourth day some waste was removed. On the following day a lad of 15 years of age went into the still and was overcome by the fumes. Another, and a larger, manhole has been added, opposite to the existing one, which should be effective in preventing a recurrence of the accident.

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I find considerable difficulty in administering the Special Rules in small brass foundries, in which the work is incidental to some other process, and where casting is only done at considerable intervals, sometimes of a month or so.

When I wish to examine the washing conveniences I am told that they are provided when brass casting or mixing is being carried on, and in drawing attention to a failure to limewash within twelve months, the argument has been put forward that the place is not a brass foundry, as no brass work is being done at the time of my visit.

The same argument is applied to the affixing of the Special Rules.

Mr. Owner (*South London.*)—Generally the rules are well carried out in aerated water works but there appears to be a great aversion to notify accidents. Several bad cases have been discovered and prosecutions instituted. In one case discovery of the accident led to a disclosure of Sunday work. At the large factories I am glad to report, the whole of the workers engaged in the bottling rooms are compelled to wear masks, even H. M. Inspectors being advised to do so. It seems therefore somewhat incredible that the same firms were allowing girls to polish the metal on newly filled syphons, in a separate room without guards. At my suggestion guards were provided and worn by the workers.

In brass casting works the principal difficulty seems to be as to washing accommodation, Usually the tank which supplies water for mould moistening is deemed to be sufficient. In many cases limewashing appears to have been forgotten entirely.

The occupiers of premises in which hides and skins are dealt with are now carrying out the rules much more satisfactorily. Here again the term lavatory accommodation was construed to mean anything but washing convenience. However, proper facilities are now being provided, and together with the overalls are appreciated by the worker.

At the only factory in which enamelling of iron plates is carried on, I was at a loss to discover the cause for several cases of lead poisoning. The special rules are well carried out, but upon watching the work for some time, I found that "dusting" was done outside the edge of the perforated table, and the dust so caused, was, no doubt air carried in the room, and breathed by the workers when resting with their respirators off. Most of these men also chew tobacco carried in their overalls. Although I have cautioned them as to the danger of this habit, I am afraid it is too deep rooted to be easily broken off.

Only one white lead factory in this district is at present working. And I am pleased to say the firm continue to take the greatest interest in studying preventive measures. They have lately fitted up a new stove so arranged that the worker never enters it; and at my last visit work was being carried on more expeditiously by its use than before. There have been very few cases of lead poisoning in the making of white lead, but at one premises there were several cases among men who were engaged taking down an old precipitation plant. No overalls were worn by them, and the work was carried on in a most careless fashion.

Mr. Johnston (*West London*).—The observance of special rules in aerated water manufacture seems to vary according to locality. In some towns I have found it the exception for the workers to wear the masks and gauntlets provided, while in other towns close at hand the reverse was the case. I have sometimes been told by bottlers that they were not afraid of prosecution, because in those cases where convictions have been obtained, only 6d. penalties were inflcted.

Mr. Allhusen (*North London*).—The one case of mercury poisoning investigated by me occurred at a thermometer makers in Clerkenwell, in a well-ventilated and airy workshop. It appears indubitable that the main evil and source of poisoning is that associated with the sealing of the tubes. The mercury being heated until the tube is full, a certain amount of vapour must be given off, inappreciable, perhaps, in the case of a single instrument, but to be reckoned with after a dozen or two have been finished. The great difficulty in the way of ventilation (a hood or fan over the work naturally suggests itself at first) is that any artificial draught to withdraw the fumes is impracticable, for, if cold, it is liable to crack the tubes, but even if warmed, it will draw away the blowpipe flame and seriously interfere with the work. In the whole, then, the ventilation is the most important point, more so than the washing appliances, for mercury is not the sort of stuff to get under the finger nails, as the other metallic poisons are apt to do.

In many factories, either owing to lack of space, or on account of the convenience in driving the machinery, the gas engine is in the same room as the workers. Almost invariably in these cases, an objectionable smell due to the escape into the room of the partially burnt gases is noticeable. In all cases, if possible, where the engine is thus run, there should be a pipe affixed over the ignition tube, broader than the tube itself, to effectively remove these combustion products which, undoubtedly contain the more actively poisonous acetylene in addition to the well-known oxides of carbon. Nearly all the accidents investigated at aerated water works have been of a comparatively slight nature, occurring upon unprotected parts of the body, fingers, &c. The owners appear as a rule anxious to further the observance of the special rules, despite the objections of the workers, male and female, to wearing the masks and gauntlets, especially during the hot weather.

Mr. Fallows (*Inspector's Assistant*).—I have paid visits to several premises devoted to the sorting of hides and skins, both before and since special rules were issued. These places are more or less warehouses, and are situated at or near the riverside. The hides and skins are

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unloaded from the vessels, are then sorted and re-baled for sale or transit. The chief objections to the rules are the wearing of garments, the examination for cuts or scars upon the body, and the covering of hands whilst handling or sorting. The labour is furnished by men who do a day (or portion of a day's work), and may probably be seen at the place no more. I am informed by the occupiers that they are somewhat hampered by these workmen who, although protection is offered them by the adoption of the special rules, they will not don an overall which has been worn by another workman. As to hand covering, the firm provided gloves, but the men refused to use them after others had worn them. I am of opinion that the use of gloves would be a source of danger, for in the event of one man having a sore or scratch upon his hand the glove would chafe it, and thus smear the inside of it, and the next man to wear the glove would probably contract disease if he also happened to have a scratch on his hand. The question of scratches or sores is a difficult one, many a man would not subject himself to be even looked at for a sore, neither would he acknowledge such a fact for fear he would be rejected.

In places wherein paint is used, such as coach and van works, several cases of lead poisoning have occurred. In the former places, a rather bad and risky custom prevails of washing the hands in the same water which is used for "flatting" (rubbing the surface of the coaches with pumice stone after a coat of paint). I have secured washing accommodation at many places, but the same difficulty prevails as in the case of the workers in hides and skins; they will not take the trouble to wash. I regret to say that after the occupier has gone to the expense to provide a stand and bowl, soap, &c., it is ignored; and at my second or subsequent visit, either the soap or towel is lost, or the basin removed and used for paint.

In coopers' shops I have enquired about two cases of lead poisoning due to the effects of the lead when casks have been repaired which had been used for lead. Although good accommodation was provided I could see that it had not been used for days, the basin was covered with dust.

Water gas

Water Gas.—Very few accidents are notified as caused by the making or use of water gas. In one case, a man was starting a gas engine, when the bag containing Dowson gas burst, and a few minutes after the explosion the man was found in the street unconscious, and remained so for about three hours. He was taken to a doctor's surgery and then home, and does not remember being taken to either place! In reporting the accident, the certifying surgeon says, "the gas being inodorous there was nothing to warn him that he was inhaling the poison; this gas ought to be odorised and proper means for its escape through the roof should be enforced."

Mr. Ireland (*East London*).—A fatal case of alleged gas poisoning occurred at the water-gas purifiers in a large gasworks in this district. Part of deceased's employment was the charging and discharging of these purifiers. They are sheet-iron chambers, about 57 ft. long, 27 ft. wide, and 5 ft. deep, arranged in series of four or five, in which are placed six layers of grids containing lime. The gas to be purified is then passed through the chambers, and in its passage gives up to the lime the sulphuretted hydrogen (HS_2) and the carbon dioxide (CO_2) which are present in the gas as impurities. In the process of purification the lime first takes up the sulphuretted hydrogen to form sulphide of lime (CaS), but the latter is split up by the carbon dioxide, which has a greater affinity for the lime than the sulphuretted hydrogen, and forms carbonate of lime ($Ca\,CO_3$). The sulphuretted hydrogen thus set free is driven by the union of the carbon dioxide with the lime, through the series of purifiers, there being at the end of the last one a special arrangement for its recovery. During the process of purification a tarry deposit, containing some hydro-carbons in solution, is formed at the bottom of the tanks, and as these are very volatile, the men are sometimes affected during hot weather by their partial volatilisation. When the lime has become saturated the gas is shut off, and air is blown through the purifiers for six hours, and it would be expected that this would have the effect of clearing off any free gases present in the lime. The water-gas contains about 35 per cent. of carbon monoxide and 0·3 per cent. of sulphuretted hydrogen, so that poisoning by either of these gases was possible in the case under consideration. I am of opinion, however, that the man was not gassed, as in any case which has come under my own experience, or that I have heard of, the man is attacked while in the poisonous atmosphere, gradually recovering, if he does recover, after he is able to breathe good air. The deceased, however, although he complained several times in the morning before breakfast of feeling ill, resumed work after breakfast, completed discharging the purifier, and was employed charging it with fresh lime, when there could be no poisonous gas present. While thus employed, he became so ill that he had to leave off work about 11 a.m. He was still able to walk to the station, and from the station home, but got gradually worse, and died about 3 o'clock next morning. His getting worse after getting to fresh air seems to me to point to some other source of death that gassing in the purifier. My impression was confirmed by experiments made by the company after the accident, and by me at the time of my visit. A solution of blood was placed in three test tubes. Through these was passed, respectively, water gas, ordinary air, and air from a purifier, after only two hours blowing through. The first turned the blood solution pink immediately, the second had no effect, and the only effect on the third was to destroy the turbidness of the solution and render it quite clear and transparent. The last mentioned seems to indicate the presence of the merest trace of CO, but not enough to have any harmful effect. That experiment seemed to put poisoning by CO out of court, and there was that left by HS_2. In a purifier that was being discharged at the time of my visit I could smell no trace of

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sulphuretted hydrogen, and lead papers were practically unaffected, showing that there was probably less than $\frac{1}{10}$ per cent. of that gas present, a proportion that would be quite innocuous.

The medical evidence went to shew that the body was well nourished, which indicated that death could not be due to chronic gas poisoning; that it might be due to one of three causes, namely, (i.) some acute illness, (ii.) sulphuretted hydrogen poisoning, or, (iii.) ptomaine poisoning. The symptoms appeared to point equally to (ii.) and (iii.), but in the light of the expert chemical evidence that was given at the inquest, shewing the impossibility of sulphuretted hydrogen being present in any appreciable quantity, ptomaine poisoning as the cause of death seems to be the only reasonable conclusion. The jury found that death was due to sulphuretted hydrogen poisoning, but I strongly disagree with this verdict.

Mr. Harston (Kent).—Carburetted water gas is manufactured at six of the gas works in the Kent District, and used only for enrichment purposes; but I have not heard of any accident in connection with the process.

Mr. Wilson (Southampton).—Water gas is used at several gas works in the district. I have inspected the plants at Portsmouth, Southampton, and Bournemouth. In every case I found that the gas supplied to the town consisted of 75 per cent. of coal gas and 25 per cent. of water gas, the proportion of carbonic oxide in the mixture being about 15 per cent. in each case, as against 10 per cent. in ordinary coal gas. So far no cases of poisoning have occurred.

Dust, removal of, and Ventilation.—One of the most important events of year 1900 from a departmental point of view was the appointment by the Secretary of State of Dr. J. S. Haldane and Mr. E. H. Osborn, Engineering Adviser, to be a Committee to enquire into and report upon the means of ventilation in factories and workshops, with special reference to the use of fans, and the use and construction of respirators for the protection of workpeople exposed to dust or dangerous fumes; and the appointment of Mr. C. R. Pendock, Inspector of Factories, Bristol, as Secretary to the Committee. These gentlemen are still investigating the methods of ventilation in factories and workshops, and the best mode of extracting injurious dust or fumes at their point of origin. I hope and believe that the result will be to show the staff, and also factory occupiers, how best to secure a constant supply of fresh air; and how best to remove noxious dust and fumes from the air of workrooms, or, better still, how to prevent these from mixing with the air, although generated in the room. A great future for factory inspection lies in this direction. Much has already been done by the provision of mechanical fans and connecting hoods and ducts, but owing to lack of scientific knowledge of the subject the work has been mainly in the way of experiment, not always with the best results. Whilst ventilating engineers are quarrelling as to the best mode of ensuring a pure atmosphere in factories and workshops, the unfortunate manufacturers and their workpeople are the victims of foul air, charged with impurities, gases, dust, and fumes, or else subjected to draughts which make them ill in other ways. If we can arrive at certain principles on which these evils can and should be dealt with, and be shown the proper way in which to secure a pure and healthy atmosphere indoors, one half of the present ills of factory employment will soon be abolished. *Ventilation.*

By section 36 of the Factory Act, 1878, as extended by section 33 of the Act of 1895, it is enacted that if in any factory or workshop where any process is carried on by which dust, gas, vapour, or other impurity is generated and inhaled by the workers to an injurious extent, it appears to a factory inspector that such inhalation could be to a great extent prevented by the use of a fan or other mechanical means, the inspector may direct a fan or other mechanical means of a proper construction for preventing such inhalation to be provided within a reasonable time, and if the same is not provided, maintained, and used, the occupier is liable to a fine of £10. In May, 1900, Mr. Hoare directed the occupiers of a jute factory at the East-end of London to provide mechanical fans in certain rooms in which much dust was generated, and on their failing to do so, brought them before the magistrate for breach of the above-mentioned sections. At the hearing of the case it was proved that much dust was generated and inhaled by the workers, but the magistrate dismissed the summons because the Inspector failed to prove that any of the workers had, in fact, been injured by inhaling the dust. An appeal was made to the High Court of Justice with the result that the Court allowed the appeal, and ordered the case to be remitted to the magistrate to find whether or not the dust was generated to an injurious extent; the Court being of opinion that it is not necessary for the determination of this question that anybody should have been actually injured thereby. After this decision the firm put in no less than eight fans. At the re-hearing of the case, it was withdrawn under instructions from the Home Office, the object of the prosecution having been gained by the provision of fans. *Fans.*

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It does not seem to be generally understood by factory occupiers that when making installations of fans they can, by asking, obtain the benefit of the skill and experience of Mr. Osborn, the engineering adviser of the department, to advise as to the best and most efficient arrangements to effect their purpose. Much money continues to be wasted by putting fans in the wrong place, or not having connecting ducts from the places where the dust is generated, so as to prevent the dust from passing into the room and being inhaled by the workers.

Mr. Vaughan (*North London*).—The dustiest trades in my district are cabinet works, where sand-papering machines are accountable for a great deal of dust, and metal-polishing works, especially in the polishing of handle-bars for bicycles. In some cases cyclone extractors are used with an excellent result; and I might instance, as an excellent example of effective ventilation under unpromising structural conditions, the polishing room at the Royal Small Arms Factory at Enfield.

The machine rooms of letterpress printing works, which, owing to the enormous value of property in the City, are almost invariably in the basement, present great difficulties in the way of efficient ventilation. Artificial light is generally used throughout the day, and the only outlets to the air are of necessity kept closed, owing to the dirt and dust which are otherwise admitted from the street. Mechanical ventilation is often so expensive that one feels some diffidence in calling upon employers to embark upon improvements which often prove ineffectual. I trust that the Committee which is now inquiring into these matters may be able to suggest means which will overcome these difficulties.

The gradual introduction of electricity for motive power as well as for lighting purposes promises some improvement in the direction of purer and healthier atmospheric conditions.

Mr. Harston (*Kent*).—The removal of dust in cement works has so far proved most difficult of solution. Although no complaint has reached me from the workmen, and I have been unable to procure any conclusive evidence of any specific ailment directly attributable to the inhalation of dust, I am strongly of opinion, however, that it is impossible for anyone to follow employment in an atmosphere so dense as to almost completely obscure vision (such as I have found in some cement factories) day after day and week after week without suffering serious injury in some form or another. Standing in such a dust-laden atmosphere for only half an hour I have personally experienced much discomfort and felt the ill effects for many hours afterwards. I have again and again drawn the attention of employers to the provisions of the Act with regard to the generation of dust, and pointed out that means must be taken to prevent its inhalation. They have shown in most cases a ready disposition to comply with the requirements by the adoption of various expedients for getting rid of the dust, but without success. The new process of manufacture gives promise of a solution of the problem so far as the actual process of manufacture is concerned, but there will still be the difficulty with regard to the stores, where in many cases from 2,000 to 3,000 tons are lodged in a free state. Enormous clouds of dust are given off sometimes in transferring the cement to casks or bags for the purpose of conveyance. Fans seem to be impracticable in these places. The cement cannot be discharged by the conveyors directly into the bags or casks owing to the high temperature at which it is received into the stores. With the new process, however, it is delivered in a much cooler state, and possibly some means may be eventually devised for overcoming this difficulty also.

Mr. Ireland (*East London*).—Steps are being taken by several of the firms of paint and colour manufacturers in the district to introduce improvements which will diminish the amount of white lead dust evolved during the various processes. In one case a worm has been tried for conveying the white lead from the floor above to the mixing and grinding mill, but the white lead adhering to the sides of the shoot, accumulated in such quantities that the worm got jammed and became twisted and useless. In this case the room had been made very high so as to give good air space, but this became one of the greatest defects of the plant, for after the worms had been removed, and the white lead began to be shovelled into the shoot by hand, so much dust was evolved due to the great fall, that the men were smothered in it, and plumbism cases became frequent. Hoppers have now been fitted on the top floor, in which the lead will be mixed with oil before entering the conveying pipe, and it is hoped that the material will then be in a fit state for conveyance by means of the worm.

In another case a different arrangement has been adopted to get rid of the dust due to the fall of the white lead through the shoot, leading from the upper floor to the mill below. The usual method is to have a vertical shoot arranged directly over the point of delivery of the material in the mill, but the fall causes white lead dust to rise in clouds to the men working above. In this case the vertical shoot has been replaced by one inclined at an angle of about fifty degrees to the horizontal. Opposite to this is placed a similar one at the same inclination, so that the two form the equal sides of an isosecles triangle, whose apex is in the grinding and mixing mill. The second shoot has a steam jet introduced into it. The steam as it emerges from the jet, carries with it a certain amount of the air in its vicinity. Air flows up the shoot to repair the vacuum, and in this way a strong up-draught is created in the second shoot, and a down-draught in the first one, down which the white lead is fed to the mill, thus serving the double purpose of drawing the dust away from the men feeding the shoot, and exhausting the dust from the mill itself.

In these mills the stone which is termed the chaser, is the subject of two motions, namely, revolution on its own axis, and translation round the pan. When a lump of white lead is

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delivered into the mill, it may be struck by the chaser in its motion round the pan. If this takes place a great deal of unnecessary dust will be evolved. This would be obviated and a better distribution of the white lead in the pan attained, if the pan were made to revolve and the chaser given one motion only, that of rotation.

Four conditions to be fulfilled in the design and arrangement of paint mills could be formulated from the foregoing considerations, viz. :—

(1.) The white lead should be fed as near the chasers as possible;

(2.) The feeding shoots should be as short as possible;

(3.) The pan should revolve and the chaser be fixed;

(4.) The pan should be provided with an air-tight cover.

The mechanical drying stove, which is now partially adopted in several white lead works, has provided a mechanical substitute for the most dangerous parts of the processes, namely, drawing the stoves and packing the white lead.

The apparatus in use in this district consists of a vertical wrought iron cylinder (the outer casing) in which are arranged a series of horizontal annular tables. These are attached at their inner circumferences to a vertical cast-iron cylinder (the inner casing) perforated with small holes. Through the centre of this cylinder passes the driving shaft, which is actuated by means of a worm and worm wheel. In the outer casing at the level of each table, is a door through which the white lead is charged, the slow revolution of the tables enabling the material to be uniformly distributed from the one opening. The stove is heated by means of hot air, which in due course passes through the holes in the inner casing, thence through the interior of this casing to the uptake shaft, whence it passes to the air. In its passage it creates a very strong up-draught, and thus removes any dust which may be generated during the various operations, but none is ever observed to emerge from the shaft except while discharging.

Each table is provided with a scraper arranged tangentially to the inner casing, which is brought into action at the end of the process, the motion of the tables forcing the dry white lead radially outwards through openings in the outer casing, whence it falls through a shaft to the waiting cask beneath.

There is a flexible dust tight connection between this shaft and the cask top. To the bottom of the shaft is attached some sacking, made dust-tight by lining it with india-rubber, and which has, at its lower end, an annular iron plate, lined on the lower side with india-rubber. This plate rests on the top of the cask to be filled, and thus makes a dust tight connection.

If any dust should get through owing to inequalities in the top of the cast, it is drawn off by means of a fan, exhausting into a spray of water, and aiding this fan is the strong up-draught caused by the circulation of hot air through the apparatus.

The delivery part is enclosed in a wooden chamber with folding doors, through which the cask is introduced by wheeling it in on a low, long handled cart, which obviates the necessity of the attendant entering the chamber.

There is thus no manual labour whatever during these processes, from the time the white lead is fed into the machine in a pasty condition, until it is brought out again packed in casks, and during these processes there appears no chance of any dust escaping from the apparatus. The value of it is thus apparent, and it is to be hoped that some such method of drying and packing the lead will before long come into general use.

If a mechanical apparatus could similarly be devised for stacking and stripping the white beds, the manufacture of white lead would become practically innocuous.

If a direct chemical process such as one of the precipitation processes, could produce the quality of white lead that is produced by the old Dutch method, the devising of such an apparatus would be comparatively easy. Unfortunately, however, in these and the chamber methods, a certain amount of crystallization appears to be unavoidable (probably due to the increased speed at which the carbonate is formed), and as these crystals are transparent, the white lead so made has not the body and the covering power possessed by the perfectly opaque and amorphous material made by the Dutch process.

Notwithstanding the difficulties, a mechanical method of stacking and stripping the white beds may be hopefully looked for.

I believe that at least one firm has made encouraging experiments in this direction.

Mr. Fearon (*North London*).—In the exhaustion of dust it appears that the cyclone type of exhausters are more satisfactory than fans. In the former the dust is collected with the air at full speed, but with the latter unnecessary work has to be done in drawing the air round sharp corners in the dust box to deposit the dust; and even then only part of the dust is prevented from blowing into the open air.

When visiting small flour and grist mills I have been struck by the number of even young men who, from the effects of the dust, suffer from bronchitis and lung troubles, and can sometimes only speak in a hoarse whisper. A great deal can be done to remedy this by fitting exhaust pipes to the stones, especially to those grinding barley, a precaution which is seldom taken; by covering the mouths of the shoots and, as far as possible, the bins; but certain processes remain that are essentially dusty and cannot be cured by mechanical ventilation or

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covering up, such as shooting the corn, shovelling flour, mending sacks, bean crushing and clearing out chaff from under the chaff-cutting machines; and in these cases I have recommended the men to wear linen respirators just while they are on the particularly dusty work. Every man that I spoke to about it immediately said he should get one made, but it would be very much better if occupiers were compelled to supply respirators whether they are unable to draw off or confine the dust.

Mr. Wilson (*Southampton*).—Sanitary science is a subject of which the average workman or workwoman in this district lives in blissful ignorance. The occupiers are generally willing to carry out any alteration which will improve the ventilation of the workrooms, but can hardly be expected to provide any of the numerous arrangements for extracting foul air and supplying pure air if these things are to be promptly filled up with waste paper, &c., and so rendered useless.

There are several ways of affixing baffler boards so that a window may be opened without a draught being created, and one of the simplest methods I have seen in use was carried out by affixing a board, 1 foot wide, across the upper part of the framework, the lower edge of the board touched the window sash, and the upper edge stands out about five inches. The window is then pulled down, and the draught, if any, is directed by the board towards the ceiling. In a small factory in which this method was adopted, I found the window closed and the temperature of the room about 70 degrees. On enquiry, the workmen told me that the window had been closed because of a storm about a fortnight before, and they had forgotten to open it since. Only men were employed.

At one of the largest newspaper offices 20 men are employed in the composing-room, which was lighted by 25 large gas burners, the cubic space per man being about 260 cubic feet. There are six windows, two fireplaces, and a door in the room, but nevertheless the temperature often rose to 90 degrees. One or two attempts were made to ventilate by patent windows, but this was of no use, and finally, at my suggestion, the firm adopted the electric light, and lowered the temperature about 20 degrees at once.

Mr. Allhusen (*North London*).—Wherever possible, and especially in those rooms where much gas is burned, I have recommended the adoption of some scheme of ventilation, preferably the louvred pane, which seems to me the most simple and efficient; it can be opened, like a venetian blind, to any degree, and does not cause a downward rush of cold air; it is impossible to expect that the men will open the ordinary sash window, so creative of draught, on a cold day. Perhaps, in some cases, the glass partition at the foot of the sash, as used by Dr. Ransome in his "fresh air cure," might be applied into advantage; being cheap and readily affixed; the sash can then be opened, and the air, striking against the glass partition, is directed upwards, and away from the workers.

The adoption of the electric iron, the ventilation above the ignition tube of the gas engine—both mentioned before,—would tend to improve matters considerably. It is well in recommending these details to be very explicit, for I found one occupier who, upon being recommended to put a ventilating shaft over the ignition tube of his gas engine, had affixed a narrow piece of gas piping, possibly half an inch in diameter, expecting that this would extract the combustion products. Having found it to be useless, he tied it up out of the way, without enquiring why it was useless; without apparently caring whether it was or was not useless.

Sanitation.

Sanitation.—A considerable improvement in this important matter is gradually being effected by the combined efforts of the Local Authorities and Factory Inspectors. In most large towns the workshops are dealt with effectively by the Medical Officers of Health and Sanitary Inspectors, and an improved and extended system of water-closet accommodation in factories is also slowly making progress. Architects and builders pay more attention nowadays than they used to do to the provision of proper sanitary appliances, so that new factories and workshops are fairly well supplied, but there is great difficulty in old works in getting necessary alterations made, or indeed in finding room for the conveniences. Outside the larger municipalities it is to be feared that very little headway is made, and frequently the makeshift appliances are a disgrace to civilization.

I think the time has come when washing conveniences might be made compulsory in all factories and workshops, and not only in those in which poisonous substances are used. There should be means in the works of getting rid of the dirty condition of hands and faces contracted therein, and this would tend not only to the improvement of the workers but of the work.

Mr. Hoare (*East London*).—I have been far from satisfied with the attention paid, or rather not paid, by the local authorities to sanitary complaints, but as the local bodies have been since 1st November reconstituted I do not consider it necessary to go further into the matter. I believe complaints will be better attended to under the new *régime*. It seems hopeless to get the local authority to take any proceedings for overcrowding, as their usual plan is to serve a notice; it is then abated, and a fresh offence arising a new notice is served.

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Mr. Vaughan (*North London*).—Complaints sent to the local authorities with regard to sanitary shortcomings generally meet with prompt attention; and I am glad to be able to record an entire absence of the friction which might easily result from dual control. The objection of the London County Council to the blocking up of landings and staircases by w.c.'s leads in many cases to their inclusion within the workrooms. This is a most objectionable and retrograde result. When the L.C.C. orders the demolition of existing w.c.'s, perhaps in connection with the construction of new staircases, the contractor is forbidden to erect new w.c.'s on the landings, with the consequence that he places them in the rooms used for work. The only escape from the difficulty appears to be the enlargement of lobbies and landings, which must of course be done at the expense of curtailing the cubic capacity of the rooms.

Sufficient attention is hardly paid to the contraction of the cubic capacity of rooms caused by piles of stock and materials. This is especially the case amongst fancy-box manufacturers, manufacturing stationers, and to a less extent amongst clothiers. The actual cubic capacity is thereby reduced, the admission of fresh air impeded, and also danger in case of fire increased. It is a very difficult matter to deal with, as the amount of stock found to day may be gone or doubled to morrow.

Overcrowding in workshops is, as I have frequently had occasion to remark, practically unchecked. The local authority cannot, even if he will, punish or stop it. A case of overcrowding found on one inspection is duly notified, and a visit is in due course paid by the officer of the local authority. Very probably the room is not overcrowded on this occasion, but if it should be found to be overcrowded the Public Health Act requires that a notice shall be served to abate the nuisance. The man who would allow his workshop to be found overcrowded again on the date of expiry of the notice, does not deserve to have the privilege of offending with impunity again. I have always considered that overcrowding should be divorced from the general sanitary provisions, dealt with by the sanitary authority, and placed specifically under the control of the deparment. We could deal with it satisfactorily, and the local authorities can not.

Mr. Shinner (*Norwich*).—The sanitary authorities vary considerably in regard to the attention given to complaints sent from this office.

In one of the principal towns of the district the receipt of complaints is never even acknowledged, nor is any notification sent of the steps taken. What steps are taken is discovered by revisiting. A protest, in writing, by me as to this matter elicited no reply. I am glad to say all towns are not the same, and that in some a much better and more progressive spirit prevails, and the sanitary authorities cordially co-operate.

Mr. Wright (*Northampton*).—In the large towns very excellent provision has been made in the respect of sanitary conveniences, but in the country villages it has been found in numerous instances that separate accommodation for persons of both sexes is not always provided. The local authority has been informed in all cases, and the necessary work is well in hand.

Mr. Harston (*Kent*).—Sanitary authorities in this district appear to be very apathetic with regard to the administration of the sanitary provisions of the Act in connection with workshops. I have only received from them two notices of workshops in which protected hands are employed during the year. Attention has been as a rule readily given to any complaint which I have sent of sanitary defect.

Mr. Shuter (*Plymouth*).—I find in some portions of this district that the sanitary arrangements are very inadequate. Often only one convenience for the two sexes, and that of the worst possible description. There is, however, a tendency amongst local authorities to remedy this state of affairs, and in those cases I have referred to them, they have at once taken steps to carry out my suggestions.

Mr. Bremner-Davis (*North London*).—There are innumerable places in London used as factories and workshops though totally unfit for such use; places unfit because they are underground are perhaps the most important. I cannot but think that if the use of all such places, after the lapse of four or five years, were prohibited, little hardship would be entailed on the owners, and the healthiness of the working conditions of a large number of people would be materially increased. Many places are unsuitable for use as workplaces for reasons other than their being underground. Many are even grossly unsuitable.

Mr. Wilson (*Southampton*).—Many occupiers seem to think that if they provide sanitary conveniences and lavatories as required by law their duty is done, and the cleanliness of such places may be left to chance or to the workpeople, generally represented by a small boy. I speak principally of places for the use of men. I find sanitary conveniences in factories employing as many as 30 or 40 hands in the most indescribable state of filth, not due to faulty construction or leaky joints, but merely to the want of a thorough cleansing at stated times. On drawing the attention of the occupier to it one hears "No one has complained," or "I leave it to the men," and then he says it shall be cleaned out at once, and shall be done regularly, and, I have no doubt, is done for the next three weeks.

Mr. Owner (*South London*).—In South London there is a distinct improvement in the sanitary conditions of the factory. More particularly is this to be noted in the w.c. accommodation. The filthy old trough closet is fast disappearing, and in its place is substituted the

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more improved pattern pan and trap with balance-action seat. By this means the equally objectionable urinal is also dispensed with. Lavatory accommodation seems also to be receiving consideration, and in one South London borough at least the necessity of such provision is impressed not only upon factory owners but upon the architects called in in cases of reconstruction. With regard to ventilation, there are still premises being built in which no means other than the doors and fireplaces are provided for removing the products of respiration and work.

Mr. Sharland, Inspector's Assistant (*Bristol*).—Our relations with the sanitary authorities here in this district are most cordial, and we have always had every assistance from their various officials. Any notification from us of an irregularity receives immediate attention. This is especially so in the larger towns, such as Bristol, Bath, Cheltenham, &c., &c. Only to-day we have received from Cheltenham a list of all the workshops in the town. These I check off with our list of workshops, and endeavour to visit the new places named by them. But the section relating to the local authorities sending H.M. Inspector notice of a new workshop has only been complied with at Bristol and Bath, except of course the towns who have sent us a complete list of their workshops.

Escape from fire.

Fire, Means of escape from.—The regulations of the Acts as to means of escape in case of fire work very well in those places in which more than 40 persons are employed. The building surveyors of the local sanitary authorities are able to say what structural alterations are necessary and to see that they are carried out. The attention given to the matter during the last ten years, and especially during the last five years, in consequence of the provisions of the Factory Acts of 1891 and 1895 has had the result of causing new works to be built with proper provision for escape in case of fire, and second staircases or outside ladders to be provided in old works. But when we come to places in which less than 40 persons are employed the difficulty is increased tenfold by reason of the want of space for alterations and want of funds to make them, and also by the fact that the unfortunate Factory Inspector—on whose shoulders rests the onerous duty of dealing with these places—is hampered by the fact that his powers are limited to asking a magistrate to order that a moveable fire-escape may be provided. As the utility of these is as least doubtful, practically nothing can be done beyond suggesting structural alterations or the provision of means of exit to another building. I think the local authorities could deal with this matter better than we can, although I doubt whether anything effective can be done in the numerous cases of workrooms at the top of three or four story houses with only one wooden staircase as means of exit.

Mr. Vaughan (*North London*).—The position of the department, with regard to places when less than 40 persons are employed, is very unsatisfactory. We can suggest moveable fire escapes, or ask for some means of exit to the roof, but we have no power to require any structural alteration, which in a large number of cases would alone render the premises reasonably safe. Either we should have extended powers, or the whole question of safety in case of fire should be placed under an authority which has those powers. As matters stand, we should be held responsible by the public if loss of life occurred through a fire, although our powers are too restricted to be thorough and effective in dealing with so vital a subject.

The position of an occupier or would-be occupier of fresh premises, is the cause of much complaint on their part. I am frequently asked to inspect a factory which it is proposed to take over on lease, and find that information is wanted as to the sufficiency of staircase accommodation. I refer the inquirer to the London County Council. He is requested to furnish full and detailed plans, and after this has been done at considerable trouble and expense, he receives no intimation of approval or disapproval from the London County Council for, perhaps, several months. Meanwhile, either his proposal to take the premises falls through, or else he grows tired of waiting, signs his lease, and then finds himself let in for heavy expense in the erection of one or more entirely new staircases. I think that at any rate every facility should be given to an employer who is anxious to ascertain and to comply with the regulations on the subject.

Mr. Wright (*Northampton*).—Under this heading very little can be found fault with in this district. The majority of large works are quite modern and well provided with means of egress. In those cases where danger exists I find manufacturers, as a rule, cheerfully comply with any suggestions I have to make.

Mr. Harston (*Kent*).—In many workshops where there is only one outlet, and where it is most desirable that there should be some further provision for escape in case of fire great difficulty is experienced, from a variety of circumstances in supplementing the existing arrangements in this respect. The second staircase is impossible, communication with other buildings impracticable, and strong objections are urged against fixed ladders. Canvas tubes and rope ladders are at the best unreliable. I have seen flexible steel ladders fitted in one or two cases, which are very conveniently stowed away, and always ready for use.

Mr. Owner (*South London*).—In new buildings, the County Council Regulations are the means of securing an increased degree of safety in case of fire. In the old factories the

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London County Council requirements are equally stringent and effective, and in order to evade making structural alterations one firm has taken a room in an adjoining house, by which means the number of workers is reduced below 40.

Mr. Allhusen (*North London*).—Against the usual form of portable fire-escape, the canvas tube, some serious objections may be urged. There is, for instance, the danger of the canvas being cut by the boot protectors, or hobnails so often worn by the workers; this, of course, would mean precipitation on to the pavement below. Such accidents have actually happened, and I think that the rope method—at any rate upon those floors where there are not many (say not more than ten) workers, is more satisfactory. It hangs, always ready for immediate use, in the corner above the window, and has not to be unpacked from a box which very probably has a pile of goods resting upon it. It is available in narrow courts and alleys, where the tube could only be used with difficulty, or not at all, and it is readily renewed when worn out, there being no fold where decay may set in. The sling, ready tied with a bowline, is easily used by girls, and the friction of the deadeye through which the rope is rove readily enables the worker to lower him or her-self. I have seen trial made with it by a girl, who lowered herself down into a narrow alley with perfect ease, where a tube would have been impracticable. As with the tubes, it is of course necessary that the workers should practice the descent, so as to be able to handle the escape efficiently in time of need.

Mr. Seymour (*South London*).—An interesting and important point in connection with danger from fire in various industries has been brought to my notice by a firm of leather dressers and curriers in the South of London; this is, that leathers prepared with bichromate of potash, known as chrome leathers, will take fire and burn rapidly, also smouldering for a considerable time after the flame is put out. Bark-tanned leathers are much less inflammable and do not smoulder, while those partly bark and partly chrome-tanned occupy an intermediate position in this respect. I do not know if this is generally known, but it seems to be a matter of serious import to users of these chrome leathers, which are used to some considerable extent in the boot and shoe-making trades.

Laundries.—There is a continual increase in the number of large steam laundries and a still greater decrease in the number of small laundries in all parts of the country. This tendency will make it easier to deal with them under the ordinary regulations of the Factory Acts instead of as now under section 22 of the Act of 1895 only. With a few special exceptions to be granted by the Secretary of State or specified in an Act of Parliament there is no reason why the hours of work in laundries should not be restricted and regulated the same as in factories. To allow young persons to work twelve hours and women fourteen hours in any consecutive 24 hours, exclusive of meal times, and overtime in addition in the case of women is and must be more or less injurious to the workers, and gives an advantage to the unscrupulous occupier over the conscientious one, inasmuch as overwork beyond these irregular and excessive hours is difficult of discovery and proof. *Laundries.*

Mr. Blenkinsopp (*West London*).—Bringing laundries under the Act has introduced a considerable amount of new machinery that requires fencing. Of course there are the engines, the gearing, the belts, pulleys, &c., which are common to all factories, but in addition there is the special machinery only to be found in laundries, and in some few dye works. The clothes when washed are wrung in two ways—one by putting them through wringing rolls, the other by putting them into hydro-extractors, the inner part of which revolves at a very high speed and draws in the air, which makes the water run out of the machine, and thus dries the clothes.

The wringers resemble the old American washing machine, formerly common in private houses. When driven by power these rollers are dangerous, for the hands of the workers who are putting the clothes through the rolls are often caught and serious injuries inflicted. As the clothes are bulky, it is not easy to devise a guard which will admit the clothes without tearing them, and yet which will prevent the hand passing in as well.

One firm makes wringers with three rollers; two of these work together as usual, but the third roller is placed over a foot in front of, and on a level with the lower of the two ingathering rollers. Round this lower roller and the third roller in front there is a travelling band of the width of the rollers; clothes placed on this band ought to be taken through the wringing rolls without danger to the worker.

The ordinary wringer, however, cannot have a third roller of this kind affixed to it, and the best mode of guarding this wringer is (as far as I know up to the present) the one invented by a laundryman—the late Mr. King, of Blue House Laundry, Walworth. This is also in the form of a third roller, which, however, is placed close to, but not touching the wringing rollers.

There is naturally an art in fixing this third roller. There should be a certain amount of "play" for the roller, and to obtain this the thole at each end is put in a slot. The thole and the slot should be made of brass, which does not rust, and being metal cannot be affected and swell up with being wet. If not properly placed this third roller may be a source of great danger, and the majority of the laundry engineers who have affixed this roller have shown themselves utterly ignorant of the plan which seems to promise safety.

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The Decoudon ironing machine is the cause of many accidents. It has a metal lip running the whole length of the ironing portion, and when closed pressing against the ironing cylinder. This lip is opened and shut by a foot treadle, and two women generally work together. The article to be ironed is pushed over the lip when it is open, and if the feet are taken off the treadle when the fingers are over the lip, serious injury is caused. The lip closes up against the cylinder, and the fingers are caught. Not merely are they crushed and bruised, but also severely burned, for all these parts of the machine are hot enough to burn.

A firm of engineers some time ago invented a guard in the shape of a false lip, placed along the top of the real one, and so arranged as to release the fingers if they are caught. I have seen it on a model, but not on a machine at work. I believe that it was not altogether a success at first, but I hear that it has been improved, and will soon be fixed on some Decoudons in this district.

Mr. Shuter (*Plymouth*).—Many complaints are received from workers in laundries respecting their hours of work, and yet on investigation it is usually discovered that the total limit is not worked up to. It would be a great improvement if the usual factory hours could be applied to this class, as it would facilitate the detection of overwork, would better the lot of the laundresses, and I believe would be welcomed by the occupiers themselves.

Mr. Allhusen (*North London*).—The health of the workers in laundries, &c., where gas irons are used, would, in my opinion, be much benefited by the substitution of electric irons. From the enquiries I have made, I believe that these compare favourably in price with the gas irons, and a steady temperature of about 700 degrees Fahrenheit may be obtained; one employer spoke highly of them, both as to cleanliness, and the results obtained.

Mr. Sharland, Inspector's Assistant (*Bristol*).—In laundries such latitude being allowed makes the question of hours of employment very difficult to deal with. Work may be commenced at anytime during the day, and continued until any hour at night. For example, some time ago I found women at work at 12 o'clock at night in a laundry, yet they had not exceeded the number of hours allowed.

We have received complaints of excessive hours being worked in laundries, but on investigation found we could not interfere as only two women were employed. This has given rise to misconstruction of our action on the part of other occupiers of laundries who happen to employ three or more hands, and have been therefore obliged to conform to the law, and who naturally think they have been unfairly dealt with, or that their rivals have been unjustly favoured.

Electricity.

Electricity Works, Accidents in.—The rapidly increasing number of works in which electricity is generated, and the importance of, and danger to be found in, these works, form special features of the Inspector's reports for 1900. I trust that the printing of these reports will draw attention to the danger, and help to indicate measures of safety. One is naturally somewhat reluctant to interfere with the work of electrical engineers, but it would seem that in their zeal to extend the use of electricity they overlook the obvious dangers to be encountered.

Apart from the engines driving the dynamos, the machinery in use is so different from anything to be found in factories, and the danger of quite another kind, and will certainly require special knowledge in dealing with them. Several of the Inspectors have taken a great interest in the subject, and possibly will be able to lay down rules for the guidance of others.

Mr. Maitland (*Bristol*).—A man (aged 29) named Richard Edwards, who had been in the employ of the Corporation electricity department for six years, was at work in a new large roomy transformer room. He was placing the fuses into three "dead" transformers, in close proximity to which there was a "live" transformer, the latter however being quite covered with an india-rubber perforated mat. Deceased when last seen by his mate was in the act of stooping down to place a fuse in the last of the "dead" transformers, and in that position he is supposed to have overbalanced and fallen on to the "live" transformer, which overturned, and the uncovered portion being thus brought uppermost and forward, the deceased's body came into full contact with the current. The "live" transformer was not in its "case" at the time of the accident, the "case" being removed for testing purposes. Two men working close by heard the deceased cry "Oh!" and immediately ran to pick him up. Medical assistance was soon at hand, and artificial respiration was tried for two hours without avail. There were no marks whatever on the deceased's body, and only a slightly burnt hole in his cap, caused by coming into contact with the arc lamp. If the outer casing had not been removed from the transformer this accident could not have happened.

It appears to be the opinion of experts that under no circumstances should the casing ever be removed from a "live" transformer.

Mr. Butler (*West London*).—I do not find the recommendations of the Home Office Committee being carried out in Electric Generating Works as might be desired. The occupiers generally admit the rules to be good ones but go little farther.

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A man lost his life recently at a Metropolitan Electric Light Station, and it appears to have arisen from the merest forgetfulness. His duty was to disconnect a certain main switch and then to try a circuit breaker—really a kind of second switch in the same circuit—to see whether it was in working order. The circuit breaker consisted of a flanged handle of vulcanite, something like a reel or bobbin, supported at either end by brackets of brass, hinged to the switch board. On the occasion of the accident, he omitted to disconnect the main switch, but proceeded to try the circuit breaker as usual. In doing this he caught hold of the circuit breaker with both hands, touched the brass brackers and received a full 1,000 volts through his body. If he had only caught hold of the flanged handle with one hand, he would not have received the fatal shock, and further, if he had properly disconnected the main switch, the current would not have been passing.

Mr. Bremner Davis (*North London*).—With the inevitable increase of electric driving in the near future, injury from electric shock is likely to occupy the attention of the Factory Department to an increasing extent. Hitherto knowledge of the relationship, which exists between electrical pressure (voltage) and the liability to and seriousness of shock, has been somewhat vague. In the nature of the case, accurate investigation is difficult. But a scientific man, Professor Weber, of Zurich, has recently undergone the risk and pain of a systematic series of experiments. While such a series of experiments, made as they were on a single individual, however well conceived and carried out, can hardly give the last word on the matter, Professor Weber's results are valuable and especially interesting to members of this department. The account of these experiments which follows is an abridgment from a translation by Mr. F. Lehman, from the Danish *Civilengeneer*, the original paper being by Mr. W. Rung, C.E., of the firm of Messrs. Brown, Boveri and Co., of Switzerland. I am indebted to the editor of *Nature* for permission to quote from this translation.

An alternating current with a frequency of 50 per second was used in these experiments. Each trial was made three times and the results were consistent. In the first series a wire was held in each hand. The wires were attached to a circuit in such a way that the electro-motive force between the hands could be varied at will. Instantaneous paralysis of the hands and arms and complete inability to release the wires occurred (a) at from 40 to 50 volts when the hands were wet, (b) at from 80 to 90 volts when the hands were dry. The pain was almost unbearable. This shows that the simultaneous touching of the two poles of an alternating circuit is dangerous when the pressure between them exceeds one hundred volts and may be dangerous if it exceeds sixty. The case will probably be fatal unless immediate help be at hand as at these pressures it is impossible to set oneself free.

In the second series of experiments, Professor Weber stood on the ground and touched or held a live circuit at one point only. The circuit was earthed at one end and kept at a high potential at the other. By varying the point of touch, an electro motive force (pressure) variable in amount was obtained much as in the first series of experiments. But in this second series the pressure is applied between the soles of the shoes and one hand. The results obtained are very different from those observed when holding a wire in each hand.

STANDING ON MOIST GRAVEL SOIL.

P.D.	Effect when the wire was	
	Slightly touched.	Firmly gripped.
2,000 volts	Violent stinging of skin	Intense trembling of fingers.

STANDING ON CLAY COVERED WITH COAL DUST.

1,000 volts	Violent stinging of skin	Difficulty in releasing wire and intense pain.
1,300 volts	Same	Hands and arms paralysed, wire cannot be released.

It will be seen that Professor Weber's experiments establish the fact that under certain conditions danger is present at a lower voltage than was formerly supposed to be the case. On the other hand, M. Nikola Tesla has found that, with oscillations of an extremely high rate, discharges at pressures of hundreds of thousands of volts can be passed through the human body. M. Tesla has himself passed through his arms and chest currents which melted wires joining his hands. At a voltage of some ten thousand or less, and with ordinary frequencies, it seems that alternating currents are more dangerous than continuous. How the voltage and frequency vary together in making a current more or less dangerous remains to be determined. At present on this point we have only a few isolated results. M. Tesla's experiments are most remarkable, and not less so are the industrial possibilities which flow from them. One of M. Tesla's principal achievements is the design and construction of apparatus giving currents of very high rates of oscillation and voltage. It is not unlikely that the development of this

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apparatus may, among other results, lead to a complete alteration in the means of producing light electrically. How important this is industrially is realised when it is remembered that, even in its most perfect form, the present system of heating something in order to obtain light from it, is terribly wasteful. Only a small fraction of the energy used is available as light; the other very large fraction is dissipated as heat. This heat is entirely wasted in the case of street lamps, and is obnoxious indoors in warm weather. Even when it is cold it is a wasteful mode of heating, owing to the essential disability of the heat engine when working, as at present it must within small limits of temperature. The glow-worm is a far more efficient light producer than the best means humanity has yet put into use. Another result which if practically realised would be of greater, indeed of almost immeasurable, industrial importance, M. Tesla states he has already accomplished. This is the conveyance of large quantities of electrical energy through the upper layers of the air without conductors, and with but little loss on the way even when the distances are great.

Mr. Owner (*South London*).—There have been two fatalities in connection with electricity, and both, unfortunately, at the same generating station. In the first case, which was briefly noted in last year's report, a skilled electrician, who had made all the connections on the switchboard, slipped and fell against the metal part of a switch. The floor of gallery was concrete, consequently the poor fellow was short circuited to earth and killed instantly. At the inquest it was proved that the current was at a pressure of 2,750 volts alternating, and owing to the unfinished state of the gallery floor and the exposed live metal of the switch, a fall meant death if contact was made with the metal. After that enquiry the company's engineer was urged to carry out the Dangerous Trades Committee's recommendations for electric generating stations. As a result a rubber mat was provided for the floor in front of the "board," and the switches were raised 14 inches, but the metal was not covered or in any way made safe from accidental contact. The back of the board being left as before, quite open, with a few pieces of rubber mats spread about.

In October two carpenters were engaged to fix a handrail in front of the switchboard; and in order to do this it was necessary to bolt on to the marble slabs a piece of teak at each end, into which the mahogany rail would be fixed. The bolts holding the slabs up to the angle-iron frame were specially connected to earth, and whilst trying to withdraw a bolt which was five inches from a live switch, one of the carpenters accidentally touched the switch arm with his other hand at the same time. He was killed instantly. The coroner held a lengthened enquiry on two occasions, and the jury ultimately returned a verdict of accidental death owing to the firm's negligence in not providing proper supervision for these carpenters.

There are many unsatisfactory features in this case, but the principal points noted were;—

1. Exposed metals differing in potential by 2,750 volts were only five inches apart.
2. The whole metal of the switch, consisting of two long arms with springs and tail pieces, covering an area 18 inches by 9 was alive.
3. On the machine panels the switch connected to the running machine is alive when open or closed, but on the distributing panels they are only alive when closed.
4. Owing to the exposed type of switch it was possible to fall on to both arms of the switch at once, and so receive a current of about 3,780 volts owing to the difference in potential of the two phases.
5. Contacts on the back of board are all unprotected, floor not satisfactorily insulated.
6. Inexperienced men put to work upon a high tension panel without proper supervision.

As a result of this neglect proceedings were taken against the company for failure to guard dangerous machinery, to wit, a switch under sections 5 and 82, 1878, also for failing to register the accident. After three hearings the magistrate at Greenwich Police Court convicted the company on all these informations, and fined them £10 and 2*s*. costs, section 5; £20 and £10 10*s*. costs, section 82; and £1 and 2*s*. costs, section 20, 1895. I understand that proceedings are also being taken against the firm under Lord Campbell's Act for the death of this second lad.

Truck Act, 1896.

Truck Acts.

Mr. Hoare (*East London*).—I come across many evasions of these Acts, but all have been in the letter, and none I consider in the spirit, no proceedings have been considered necessary, or the evidence was not found sufficiently reliable.

Mr. Shinner (*Norwich*).—Some curious practices have come to light. In most cases it has been sufficient to point out the "unreasonableness" of some of them, and employers often meet such representations by amending what is complained of, on its being pointed out to them. However, it was necessary in one case in Suffolk to institute proceedings, and for a second offence—this being so, and upon conviction, I drew attention to the minimum penalty clauses of the Truck Acts, and the bench inflicted, though unwillingly, a penalty of 10*l*.

Mr. Owner (*South London*).—There seems to be in South London, generally, a large increase in the number of firms who charge their workers for materials, &c., supplied. Many of them are deducting 1*d*. in the 1*s*. for use of a gas engine. I am not at all sure about the reasonableness of the charge in some cases. Others I find give out work to be done after a full day has been worked in the factory; and yet others, who supply the workers with material for working during meal times. In both these latter cases it has been necessary to prosecute a few who would not desist after a caution.

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Jewish Occupiers.

Jewish occupiers.

Mr. Hoare (*East London*).—I have a large number of foreigners, mostly Jews, working as small masters, or rather as sub-contractors in the clothing trades, they come to this country, secure a workroom, and get other poor Jews to slave for them at low wages; the employers are usually first-rate workers and very industrious, they find no difficulty in obtaining work from the large wholesale houses, when work is secured, they will crowd into their workrooms as many as they will hold, and they regard overtime as a matter of necessity. When they work females they will resort to every possible device to prevent an inspector detecting them in illegal employment, and when caught will swear black is white, that they are not working, and the hands will back them up in the deception. Employers will often try and bribe the inspectors, they will even work late, if pressed, on Friday, though a part of their Sabbath, they will rob their hands of their meal times, either in part or wholly, they evade sending notice, or omit to record their overtime; they will know no English if convenient, they have to be driven to keep their workshops clean, and provide satisfactory closet accommodation and proper ventilation; when closely inspected, they will remove elsewhere, and forget to give notice of removal, and when found doing wrong, they plead ignorance for all it is worth.

So keen are they to obtain workrooms that a system exists called "key money," under it a man will pay as much as several pounds to obtain the key of a workroom from an outgoing tenant, and rents are by no means low. They appear to be exceedingly temperate, I never see or hear of any being seen the worse for drink.

Outworkers.

Outworkers, Domestic Workshops, Men's Workshops.—The lists of outworkers which occupiers are required to send to the district Inspectors on March 1st and September 1st of each year come in fitfully and irregularly, and as they generally contain places already on our books, or places so small as to be domestic workshops or adult male workshops, I am afraid that the benefit anticipated by the Legislature is not realised. Complete and correct returns would be useful, especially if we had the staff to deal with them. Twice a year seems too often to expect occupiers to make the returns; and I think it would be an improvement if forms for the purpose were sent out annually or biennially, or even triennially, with the requisitions for returns of persons employed, sent only of course to the occupiers of those places required by order of the Secretary of State to make returns of outworkers. As to men's workshops, an attempt is being made to notify to the occupiers their responsibilities in the matter of cleanliness, limewashing, sanitary conveniences, washing appliances, special rules, and notices of accidents and of opening a workshop, by supplying them with an abstract or summary of the regulations.

Mr. Sharland, Inspector's Assistant (*Bristol*).—It is sometimes difficult to deal with men only and domestic workshops in consequence of the changes they make from time to time, especially in a place like Kingswood, where you find two men at bootmaking, or a man and his wife. Then at the next visit you find a lad at work; again, perhaps, you find the man himself only. Should all these be registered and supplied with abstracts? If not no visit is ever recorded against them, unless of course they happen to have protected persons at the time of visit.

As to outworkers' lists, a tailor for example employs outworkers *only*. We instruct him to send a list of his outworkers. He does so then, perhaps; but seldom, if ever, sends it a second time.

Mr. Fallows, Inspector's Assistant (*South London*).—The work of out-workers in fur-pulling is removing the coarse hair by means of a broad knife, leaving only the fine fur upon the skins of rabbits. This fur is then taken off and used largely in making felt for hats. These skins are collected from various sources (home and Australian) and sent to the warehouses; they are there sorted and made up into bundles of 24 skins, and taken away by the out workers—chiefly women of the poorer class. The skins undergo no treatment at the firm's premises, and are taken home in a nasty condition, giving off an offensive smell. In the places which I visited, I found in nearly every case the worker occupied only one or two rooms, and the fur-pulling was done in the same room as was used for eating and sleeping. At one place I found a woman who occupied the same room for eating, sleeping, and the work. I noticed the pots used for eating purposes were covered with the fur from the skins, whilst the pictures seemed to be covered like snow upon them. At each pluck with the knife a cloud of the fur and dust was set up.

Education.

Education.—This is not such a pressing subject in the southern as it is in the northern districts. When I joined the Department in 1868, a child of eight was allowed to work half-time, and in the textile districts every child of working parents went to the mill at eight years of age as a matter of course; now, fortunately, it is illegal to employ a child under eleven, and impracticable to employ a child under twelve, as he cannot obtain exemption from school attendance. Those of my colleagues who, like me, had textile

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districts 20 or 30 years ago are disposed to regret the gradual disappearance of the half-timer, and this, I think, is due to the fact that the looking after the employment and education of these children was deeply interesting and useful work, and brought us in touch with the educational authorities, so that we were led to take an interest in the development, not the destruction, of the half-time system. But in spite of regrets, the alterations are improvements. The present (for the child) is better than the past, and the future will be better still.

In London the Bye-laws of the School Board, which were sanctioned by the Board of Education on the 21st December, 1900, make no provision for half-time exemption from school attendance, and require a child between 5 and 14 to attend school morning and afternoon; unless, being over 12, he has passed the Seventh Standard. This practically means that a child must attend school regularly until he is 14, and therefore cannot be employed in a factory or workshop, as he cannot be in two places at once; and it would be well if this were made universal, and the Factory Acts assimilated thereto. Half-time work should be abolished, and full-time work allowed only after 14.

During the year 1900 I received reports on 80 licences granted, under the Prevention of Cruelty to Children Act, 1894, by Magistrates for the employment of children over 7 years of age in theatres and places of public entertainment. If it is thought well to allow children so young to continue to appear in public performances, I think the duty of seeing whether the conditions and restrictions of the licence are obeyed should be entrusted to the police. A factory inspector often has to travel scores or hundreds of miles to enquire about a licence of this kind, and if he finds infringements can only refer the matter to the magistrate who granted the licence, who in turn may withdraw it if not expired, or instruct the police to prosecute.

Mr. Hoare (*East London*).—I have only a very few half-timers at work in my district. I regret this, as I firmly believe that the best workmen and workwomen in many trades are produced by those who commence to learn as half-timers. I have seen both systems at work, and I regret that school teachers are so much opposed to the half-time system.

Capt. Bevan (*Southampton*).—The employment of children in factories and workshops is almost non-existent in the Southampton district; a few are employed in the flax mills at Bridport, but I think the new orders under the Education Acts will do away with them, and in many places prevent anyone under 14 years being employed at all. This, I think, is desirable in a non-manufacturing district, but a serious question in the textile districts, where child labour is, from my experience, necessary. In Lancashire, Yorkshire, North and West of Scotland, Nottingham, and in Somersetshire, *small* fingers are required for piecing and doffing in flax, cotton, and woollen mills, and in bobbin-winding in lace factories. Labour certificates for children are rarely in use in the south, consequently there is much confusion as to whether a child under 14 years can be employed. They should be compulsory.

Mr. Johnston (*West London*).—In two instances I have found boys of 12 employed full time in brickfields. Evasions of the law of this kind are fostered by regulations made by some local school boards, allowing children of 12 years of age exemption from school attendance, provided they attend full time during the winter months. In one case I was informed gravely that the boy worked "on the half-year system."

Mr. Chas. McLay, Chief Inspector of Factories and Shops, Brisbane, Queensland, paid this country a visit in November last, and called upon me. We exchanged views on our work in the respective countries, and Mr. Vaughan took him to visit some works in North London. Mr. McLay has since sent me a copy of his annual report, and of the Factories and Shops Act, 1900 (Queensland).

I have received illustrations of various safety appliances from Mr. Blenkinsopp, Mr. Pendock, Mr. Butler, and Mr. Owner, and have already sent these to you to decide whether they should be used for this report or for circulation amongst the Inspectors.

I have pleasure in acknowledging the cordial co-operation of all members of the staff, who, in an exceptionally busy year, have afforded me every assistance.

I am, &c.,

WM. DAWKINS CRAMP,

H.M. Superintending Inspector of Factories.

H.M. Chief Inspector of Factories.

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MIDLAND DIVISION.

REPORT OF THE SUPERINTENDING INSPECTOR.

March 31*st*, 1901.

SIR,

IN presenting a report on the Midland Division for the year 1900, I do not think there are any matters of striking interest to chronicle outside the sphere of our duties.

Following the plan adopted last year the subjects will be divided into the subjoined heads in the following order :—

Special Rules ;

Dangerous Trades and cognate subjects ;

Overtime ;

Separate Departments ;

Fire Risks ;

Accidents, and means of prevention ;

Prosecutions and Penal Compensation ;

Truck Acts ;

General Remarks.

H.M. Inspectors in the division have forwarded reports of various length, but of unvarying interest, of the incidents of their experience of the matters detailed above, and the greater part of their remarks on each will appear in the order named.

A considerable amount of time has been absorbed in the division by clerical work, &c., consequent on the re-adjustment of staff and districts following the recommendations of the Factory Staff Committee, and in the preparation of special returns called for from time to time ; but the majority of the Inspectors have kept abreast of the conditions demanded by the new arrangements and devoted themselves unsparingly to the task of getting over the fresh ground.

Among the special matters to which their attention has been directed is the systematic definition of boundaries for the districts of the certifying surgeons, which, in many parts, such as Wales, has required great care and elaborate accuracy. The system inaugurated by you for the regulation of these areas is one of great value, and though its execution involves a good deal of time, the whole question will be reduced to a very simple matter when complete.

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The impending consolidation of the numerous Factory Acts will simplify our duties and save a good deal of time now occupied in explaining the law, both during ordinary inspection and in proceedings before courts of petty session ; but it is a matter for regret that we cannot hope to see considerable amendments introduced in order that the letter of enactments may follow the spirit, without providing so many instances of conjectural interpretation. This is hardly, perhaps, the place in which to deal with the future,—and all the required points of amendment are well within your knowledge—but I am sure that all my colleagues will gladly hail the time when the Government of the day can take this matter seriously in hand. The question is one which, outside our own sphere, grievously hampers the administration of the Workmen's Compensation Act, and it is very disappointing to find county court judges and the courts of appeal floundering hopelessly in the attempt to find out what is really meant by certain definitions of the word " factory " in our Acts. In the present circumstances it is really a matter of chance whether a decision follows the intention of the law. Certainly, in the interests of the industrial classes it is only fair that their position should be clearly defined by distinct enactment. Neither does it tend to our utility on behalf of the workers to be called in civil cases to give evidence that such and such a place is considered to be a factory, when the context of a section fails to confirm our views. This may easily happen in regard to section 23 of the Act of 1895, a great part of which, owing to its incompleteness and obscurity, may fairly be classed as an unsatisfactory piece of legislation.

The educational enactments of recent years have gradually lessened a part of our duties, which absorbed much time and attention since the year 1833. It is hardly known to the present generation that the Inspectors of Factories were pioneers of compulsory education for more than a generation previous to 1870.

In that year, when universal education was properly imposed upon this country, our department could point proudly to a long and successful administration of the half-time system. Although not a perfect arrangement, in that the standard of teaching was often far below a satisfactory level, good work was done, and when " half-timers " attended the voluntary schools of those days, they competed favourably with the " whole-timers."

I must own to a certain sentimental regret in the rapid disappearance of the " half-timer," whose interests were so integral and important a part of our functions in many parts. It has certainly been pleasant to come across men and women in various localities whose early years were passed under our care and supervision.

It must not be forgotten that, even in later days, in many parts of the country, such as the lace-making and straw-plaiting districts of Bucks, Beds, and Herts, the operation of the Factory and Workshops Acts of 1867, mitigated the evils of the wretched lace and straw schools, and brought the children into the national and British schools, even when employed in their parents' houses.

As the care of the children passes from our hands, we find a very important branch of our work in constant development, *i.e.*, the hygienic conditions under which various processes are carried on.

Lord Beaconsfield's transcript of the preacher's cry,

" Sanitas, sanitatum, omnia sanitas ! "

a quarter of a century ago was not the cry of one in the wilderness, for it marked an epoch of increased attention to the health of the people which has developed by leaps and bounds, and in no direction more than in increased care for the workers in factories and shops. From the enactments of 1891 up to the present time special care has been devoted to dangerous and unhealthy conditions, and the duty of requiring or advising remedial measures does not give much pause. Our work in that direction is considerably assisted by the continuous labour and researches of our medical colleague, Dr. Legge, whose co-operation and advice on strictly technical points is most valuable to all of us.

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soic On this point, I am pleased to observe the readiness with which a large number of manufacturers are prepared to adopt precautionary measures, not actually compulsory, but which the Inspectors have found to be advantageous and worthy of adoption. This is a matter to which due importance should be attached, as it shows the amount of confidence placed in the recommendations of my colleagues. We should often be glad of heartier co-operation in these matters among the workpeople, as may be noted in the accompanying reports, but that is a matter of time, and some of the younger members of the staff may have an opportunity of reporting how—

"the old order changeth, giving place to new . . . . . ."

and that the workers are earnestly seconding the efforts of the legislature by readily adopting and practising the suggested methods for their benefit. It must be borne in mind that in no place is a conservative spirit so distinctly maintained as in the "shop," whatever may be the political tendencies of the trade or district.

Much solid hard work has been done in this division during the year, both active and clerical, and I trust that the results are operating beneficially, if but slowly, for the workpeople, without any appreciable interference with the course of trade.

SPECIAL RULES.

It is satisfactory to be able to report favourably on the observance and operation of the various codes in force. The subjoined reports contain references of particular interest in this important branch of our work, and are mostly given in extenso. H. M. Inspectors seem to meet with little difficulty in securing the assistance and co-operation of employers and employed generally.

Earthenware and China.—It is unnecessary here to go into this most important question, as the whole matter has gone through your hands, and is still in process of settlement. The trade do not appear at present in a mood to acquiesce in the proposed standard of solubility, or the virtues of leadless glazes; and the medical examination of male adults has provoked some discontent among the workers.

Chemical Rules.—Under these a question has arisen, *i.e.*, whether the extraction of copper by certain processes of precipitation on iron is really *metallurgy* or *chemistry*. A difference of practice has obtained in the division on this point, but I hope to settle the matter at an early date.

Inspection.—From the returns I have received, it is clear that an increase to the staff will be necessary if all the places under Special Rules are to be visited four times during the year.

In some cases this number of visits is unnecessary, to wit, in brass foundries and aërated water works; it would be better to confine this proposal to the supervision of places where dangerous materials, such as white or red lead, are used or manufactured.

Mr. Lewis (*Swansea*) sends the following interesting note on leadless glaze:—

> At the South Wales pottery, Llanelly, Carnarvon, occupied by Messrs. Guest and Dewsbury, I was shown, on the 15th inst., a common earthenware dinner plate (willow pattern) which Mr. Guest assured me had been glazed with an *absolutely leadless* glaze at these works prior to the year 1875, and which had been in constant use ever since. The finish is all that can be desired, and it has stood the test of constant use equal to any lead glaze used by this firm, and for certain classes of work turned out at this pottery there appears to be no reason why leadless glaze only should not be used.

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Mr. Arnold (*Worcester*) makes special reference to the obstinately latent dangers of anthrax; his opinion is interesting in view of the woolcombing rules, which affect the carpet districts:—

Anthrax.

I am glad to say there has been no fatal case of anthrax during the year, and indeed only two cases have been reported as having occurred, one from a carpet factory at Kidderminster, the other from the horsehair factory in Worcester. During the year a discovery has been made with regard to this disease which I venture to think is an important one, and that is that the subjection of infected material to superheated steam does not *of necessity* destroy the bacillus.

Dust has been shaken out of a bale of hair, analysed, and found infected; dust has been shaken out, put through a Lynes disinfector, and found free; and again dust from the same bale has been taken after it has been, not only through the disinfector, but also through a carding engine, and is found to be infected. This tends to show that the bacillus adheres so firmly to the fibres, or is encased so tightly between them, that until the fibres are loosened or parted, the heat to which the bale is subjected—say 240°—has no effect on it. The heat that penetrates to the centre of a tightly packed bale of hair is a dry heat, and what seems to be wanted is moisture; the former might be efficacious if taken to a much higher temperature, but then the hair would be rendered unfit for manufacturing purposes. An experiment I believe is going to be made by the addition of formalin, and I am to be told of the result. All this is only an additional proof that the greatest danger of this disease in a factory is in the carding room.

Aerated waters.

These are on the whole well carried out—that they are of use may be shown by the case of a serious accident which happened at an aërated water factory at Malvern—a bottle burst and cut a man's arm badly, cutting through the woollen gauntlet he was wearing at the time; if it had not been for the gauntlet the injury must have been far more severe, and probably fatal.

Cases of lead colic still occur, and still mostly from the Midland Railway's Wagon Works at Broomsgrove. I do not quite know why this is so, as the various shops are exceptionally lofty, well ventilated, and clean.

Mr. Pearson (*Lincoln*) fears that accidents in aërated water works may not be duly reported; but on the other hand the proper observance of the rules may have obviated any of a reportable character.

Out of the 82 works under special rules—viz., 61 mineral waters, 15 brass, 6 chemicals—only one accident, and that a very slight one, in brass foundry, has been reported during the year. This, I am afraid, can only be accounted for by the neglect of reporting on the part of occupiers, as it is very improbable that out of 61 mineral works no accident should have occurred during the whole of the year.

With one exception I have been unable to visit the above places four times during the year; the more important, however, I visited two or three times, and hope to give them all more attention during the coming year. But I would suggest that revisiting the majority of mineral water works during winter months is quite unnecessary.

Mr. Walmsley (*Stoke-on-Trent*) contributes some interesting details on the existing conditions of work in the Potteries, and on the adoption of remedial measures, on which his opinion is valuable:—

In only 62 cases were four visits made to earthenware and china factories during the year.

In the other trades under Special Rules, not more than two visits were made to each place during the year.

Earthenware and china. Head coverings.

The past year has been practically uneventful. Most of the important points under the Special Rules had been complied with up to the end of 1899, especially as regards provision of fans and medical examination. The greatest trouble has been with regard to the wearing of head coverings by the women engaged in majolica painting. They complain that the head coverings make them feel sick and cause headache, and one woman assured me that her hair had become thinner since she had worn the covering. As there does not appear to be much dust arising from this work, I have simply cautioned the women when they have been working without head coverings.

Examinations.

Another point, where prosecutions appear to be necessary, is the occasional absence of females and young persons from the health examinations. The occupiers, or rather the managers, do not seem to have been sufficiently firm with the workers in compelling them to attend on the day appointed for examination, and I intend to recommend prosecutions in future cases unless some satisfactory reason is given.

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Fans. The small number of cases reported in 1900 as suffering from lead poisoning in ground laying and colour dusting, which only totals to 12 persons, is ample testimony to the efficiency of the fans which were installed in accordance with the Special Rules. The workers are highly pleased with the fans, and only regret that they were not used long ago.

Unhealthy shops. In four factories have structural alterations been made. I called the attention of H.M. Superintending Inspector to three dipping houses (two china and one earthenware), and also a potter's shop. On his instructions I notified the occupiers that we did not consider the places were satisfactory. The rooms have been altered and are now suitable.

Ware cleaning. I have repeatedly had to complain about the ware cleaners. Instead of using the troughs provided to catch the dust made in cleaning the glaze off the ware, they frequently scrape it on to the floor.

Number of Persons Employed in Processes where Lead is used in the Manufacture of Earthenware and China.

Number of "lead workers" in district. In April last I asked the earthenware and china manufacturers to give me the numbers of the persons they employed in what may be called the "lead" processes. From these returns the following table is compiled :—

North Stafford District.

April 1900.

Persons Employed as	15 to 18.		Over 18.	
	Males.	Females.	Males.	Females.
(*a*) Dippers	16	1	485	62
(*b*) Dippers assistants	285	61	101	148
(*c*) Ware cleaners	6	69	75	345
(*d*) Glost placers	80	7	1,741	48
(*e*) Majolica paintresses	—	47	—	378
(*f*) Groundlayers	—	8	48	279
(*g*) Colour dusters	—	14	2	85
(*h*) Enamel colour blowers	—	23	11	127
(*i*) Glaze blowers	1	—	6	3
(*k*) Colour makers	—	—	19	—
(*l*) Millers and mixers of glazes or colours	4	—	186	3
(*m*) Other persons coming in contact with lead not enumerated in the foregoing list.	10	3	58	12

Colour making. It will be noted that there are two other departments added to the list since July, 1898 :— Colour makers and millers and mixers of glaze or colours. The figures in these two departments are only given for the factories where the work is done on the premises. A considerable number of firms do not have any milling or colour making done on the works.

Dipping house work. Owing to the age at which boys may be employed in the dipping house having been raised to 15 years, quite a number of females have been taken on in their stead. In 1898 there were 408 male young persons and 58 female adults engaged as dippers' assistants, whereas last April the returns show 285 male young persons and 148 female adults.

Ground laying. Another process which shows the taste of the public is the large decrease in the number of groundlayers. In 1898 there were 89 male and 373 female adults ; in 1900 there were 48 male and 279 female adults. In place of "groundlaying" the process of "enamel colour blowing" has been extensively substituted, and whereas in July 1898 there were only 12 female adults in this process, the return for April, 1900, gives 127.

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Number of lead workers locally.

I append tables showing the number of "lead workers" in each town :—

Tunstall.

Persons Employed as	15 to 18.		Over 18.	
	Males.	Females.	Males.	Females.
(*a*) Dippers	2	—	41	—
(*b*) Dippers assistants	14	15	3	29
(*c*) Ware cleaners	—	5	1	17
(*d*) Glost placers	3	—	189	—
(*e*) Majolica paintresses	—	8	—	42
(*f*) Groundlayers	—	—	2	8
(*g*) Colour dusters	—	—	—	—
(*h*) Enamel colour blowers	—	5	—	26
(*i*) Glaze blowers	—	—	—	—
(*k*) Colour makers	—	—	2	—
(*l*) Millers and mixers of glazes or colours	—	—	31	—
(*m*) Other persons coming in contact with lead not enumerated in the foregoing list.	1	—	12	—

Burslem.

Persons Employed as	15 to 18.		Over 18.	
	Males.	Females.	Males.	Females.
(*a*) Dippers	2	—	118	35
(*b*) Dippers assistants	76	28	22	54
(*c*) Ware cleaners	—	22	4	124
(*d*) Glost placers	17	—	502	25
(*e*) Majolica paintresses	—	7	—	77
(*f*) Groundlayers	—	5	3	50
(*g*) Colour dusters	—	4	1	2
(*h*) Enamel colour blowers	—	7	1	19
(*i*) Glaze blowers	—	—	—	—
(*k*) Colour makers	—	—	3	—
(*l*) Millers and mixers of glazes or colours	—	—	31	1
(*m*) Other persons coming in contact with lead not enumerated in the foregoing list.	4	2	13	7

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Hanley.

Persons Employed as	15 to 18.		Over 18.	
	Males.	Females.	Males.	Females.
(*a*) Dippers	10	1	128	22
(*b*) Dippers assistants	88	9	18	31
(*c*) Ware cleaners	4	20	5	129
(*d*) Glost placers	50	5	486	14
(*e*) Majolica paintresses	—	10	—	70
(*f*) Groundlayers	—	1	17	68
(*g*) Colour dusters	—	—	—	6
(*h*) Enamel colour blowers	—	2	4	34
(*i*) Glaze blowers	—	—	3	—
(*k*) Colour makers	—	—	3	—
(*l*) Millers and mixers of glazes or colours	2	—	59	—
(*m*) Other persons coming in contact with lead not enumerated in the foregoing list.	—	—	15	3

Stoke.

Persons Employed as	15 to 18.		Over 18.	
	Males.	Females.	Males.	Females.
(*a*) Dippers	—	—	40	4
(*b*) Dippers assistants	26	—	4	21
(*c*) Ware cleaners	—	8	—	40
(*d*) Glost placers	4	—	144	4
(*e*) Majolica paintresses	—	17	—	124
(*f*) Groundlayers	—	—	4	11
(*g*) Colour dusters	—	2	—	9
(*h*) Enamel colour blowers	—	1	1	2
(*i*) Glaze blowers	—	—	—	1
(*k*) Colour makers	—	—	2	—
(*l*) Millers and mixers of glazes or colours	—	—	20	2
(*m*) Other persons coming in contact with lead not enumerated in the foregoing list.	2	—	3	2

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Fenton.

Persons Employed as	15 to 18.		Over 18.	
	Males.	Females.	Males.	Females.
(*a*) Dippers	—	—	38	1
(*b*) Dippers' assistants	22	—	10	1
(*c*) Ware cleaners	—	4	13	9
(*d*) Glost placers	1	—	118	—
(*e*) Majolica paintresses	—	—	—	—
(*f*) Groundlayers	—	—	3	37
(*g*) Colour dusters	—	—	—	13
(*h*) Enamel colour blowers	—	—	3	21
(*i*) Glaze blowers	—	—	—	—
(*k*) Colour makers	—	—	3	—
(*l*) Millers and mixers of glazes or colours	2	—	4	—
(*m*) Other persons coming in contact with lead not enumerated in the foregoing list.	1	—	3	—

Longton.

Persons Employed as	15 to 18.		Over 18.	
	Males.	Females.	Males.	Females.
(*a*) Dippers	2	—	101	—
(*b*) Dippers assistants	55	—	39	3
(*c*) Ware cleaners	2	4	52	15
(*d*) Glost placers	2	—	257	—
(*e*) Majolica paintresses	—	2	—	57
(*f*) Groundlayers	—	2	19	105
(*g*) Colour dusters	—	8	1	55
(*h*) Enamel colour blowers	—	5	2	25
(*i*) Glaze blowers	1	—	3	—
(*k*) Colour makers	—	—	4	—
(*l*) Millers and mixers of glazes or colours	—	—	31	—
(*m*) Other persons coming in contact with lead not enumerated in the foregoing list.	2	1	8	—

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Church Gresley District.

Persons Employed as	15 to 18.		Over 18.	
	Males	Females.	Males.	Females.
(*a*) Dippers	—	—	17	—
(*b*) Dippers' assistants	4	4	5	9
(*c*) Ware cleaners	—	6	—	11
(*d*) Glost placers	3	2	45	—
(*e*) Majolica paintresses	—	3	—	8
(*f*) Groundlayers	—	—	—	—
(*g*) Colour dusters	—	—	—	—
(*h*) Enamel colour blowers	—	—	—	—
(*i*) Glaze blowers	—	—	—	2
(*k*) Colour makers	—	—	2	—
(*l*) Millers and mixers of glazes or colours	—	—	9	—
(*m*) Other persons coming in contact with lead not enumerated in the foregoing list.	—	—	4	—

Electric baths for plumbism.

During the past year the Duchess of Sutherland called together the medical men in North Staffordshire to discuss the question of electrical treatment of sufferers in certain cases of lead poisoning. Electrical baths at Wolverhampton had been mentioned as being of great use to a number of people sent there. As the outcome of that meeting, it was decided to approach the Governors of the North Staffordshire Infirmary, with a view to inducing them to instal the necessary baths and appliances. A considerable sum of money has been collected towards the cost of the necessary fittings. The Potteries Electric Traction Company have generously offered to supply the necessary electric current, and at the time of writing it is only waiting the settlement between the Stoke Corporation and the Governors of the North Staffordshire infirmary, of certain points as to the supply wires coming from the electric generating station to the infirmary, before the baths will be started. Recently the engineer of the Potteries Electric Traction Company, Mr. W. Slade Olver, and Mr. Boyce, the House Governor at the Infirmary, paid a visit to the London Hospital to see the most recent methods and apparatus used in connection with baths and electric appliances, and the baths at the North Stafford Infirmary will, as a result of their visit, be fitted up on similar lines. It is hoped that the baths will be ready by the end of March next.

Infirmary patients.

During the past year there were four male and one female in-patients treated for plumbism at the North Stafford Infirmary, Hartshill, Stoke-on-Trent. This is very gratifying when compared with the numbers in 1891, which were 20.

The Operative Potter and his Enemy—Asthma.

Asthma.

From the conversation I have had with the operative potters, both old and young, there seems to be a decided improvement in their health since the introduction of the Special Rule, which required that potters' shops should be swept at night by an adult male. This was a great step forward, but it is to be regretted that a number of the workers do not take sufficient care to keep the floors free from scraps of clay when at work. These scraps become dry, and when trodden upon become dust, which must partly make the shop air become charged with dust. I do not see as much of the care exercised now by the potters as when I first came into the district. Then the older and more careful potter took his "scraper" from time to time during the day and got together all the bits of clay that had fallen on the floor.

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Towing of Earthenware and Scouring of China.

NUMBER OF PERSONS EMPLOYED IN NORTH STAFFORD DISTRICT.

Towing of Earthenware.

	Young Persons.		Adults.	
	M.	F.	M.	F.
July, 1898	3	11	3	251
April, 1900	3	20	—	191

China Scouring.

	Young Persons.		Adults.	
	M.	F.	M.	F.
July, 1898	1	20	14	245
April, 1900	—	37	9	255

Mechanical dipping.

I had expected that before the end of the past year a machine would have been is use whereby a great deal of the hand-dipping would have been dispensed with. The idea of a mechanical dipper has been often thought of, but I have never heard of one being used. Mr. S. H. Ellis, of Lichfield Street, Hanley, a photographer, has, however, invented an apparatus which will to all appearance be a successful one. From the commercial point of view it should facilitate the process of dipping, but as we are concerned mostly with the "health" part of the potting industry, it is in this respect that I must view it.

The inventor has supplied the photographs enclosed, one showing the apparatus ready for dipping plates and the other for dipping ewers. The lower part of the box contains the glaze. The plates to be dipped are placed in a framework or crate made of iron, and are pretty firmly closed in. This crate is placed upon an upright spindle and secured. The spindle is connected with bevel wheels which give the plates a spinning motion when in the glaze. At the side of the box are two wheels with handles, the larger one is weighted so as to balance the ware in the crate, whilst the other, when turned, causes the crate to spin round giving it a twist similar to that done by the dipper; this spinning motion causes the glaze to lay evenly on the ware, and also throw off any superfluous glaze. It is claimed that by the new dipping machine the process of ware cleaning will be reduced to a great extent, and that there will be practically no glaze splashed on the floor as in the present method of dipping. Such a result would tend to further reduce the possibility of persons suffering from lead. The apparatus has not yet been adopted by the trade, but the inventor, Mr. Ellis, hopes to have it on the market very soon.

Glazes

Many manufacturers have during the past two years made experiments with "leadless glazes." These do not include the firms of Minton's and Copeland's who have been referred to previously. I am not at liberty to publish their names, but they tell me that although the trials seemed satisfactory the results of a quantity fired in one oven were very poor and discouraging. One firm, however, have succeeded in getting a glaze which seems likely to be all right, and have taken large orders for it.

It must not be forgotten that although lead may be eliminated from a glaze, there is another material which is likely to replace it, and which is said to be also poisonous. I refer to barytes. It would be a pity if after achieving "leadless" glaze we were just as badly off in another class of poisoning.

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Mr. Rogers (*Derby*) is able to report favourably :—

Absence of plumbism in potteries.

The factories and workshops under Special Rules have all been inspected during the past year, most of them have had two visits, and many important works have had three or four visits. With few unimportant exceptions, respecting which instructions have been given, and compliance promised, I believe the Special Rules are being fully carried out in this district. You will notice from the report on lead poisoning that no cases of illness have occurred in any of the earthenware factories. It is also worthy of remark that the occupiers of an electric accumulator works, from which two case of plumbism have been notified, have instituted a medical examination of all their workers coming in contact with lead.

A remark on the white lead Special Rules appears under the heading "Lead Poisoning."

Aerated waters.

We still have difficulty in making the men in aërated water works wear the masks and gloves provided. I have had to seriously warn many of these people. No accidents have happened through aërated water bottles breaking, but one has occurred through a stone ginger beer bottle bursting when being filled under low pressure. It was the custom of the factory to wear gauntlets for this work, but on this occasion the man left them off, and as a result was cut on the arm.

Mr. Jackson (*Walsall*) finds little difficulty in securing observance, except on the old score of adequate washing conveniences :—

The largest number of works in this district under Special Rules are those where brass casting is carried on. They appear to be well carried out except as regards washing accommodation, and the neglect to use it by the workpeople when it is provided.

The provision of masks and gauntlets in aërated water works is generally satisfactory. One accident only from the bursting of an aërated water bottle—and this to a man who was wearing gauntlets at the time—has been reported.

Plumbism.

No cases of lead poisoning have been reported from the pottery, paint, or tinning of hollow-ware works during the year.

Red lead works.

I have received notice of two cases of lead poisoning from these works.

In my last annual report I referred to a mechanical conveyor which had been put up at these works to do away with female labour—until this year all the lead cases reported from this firm were women. I regret to say that it has not proved satisfactory; the dust, instead of being diminished has been increased, and the men who work it say that they would rather have the old system. This is very much to be regretted, as the firm have gone to considerable expense in fitting it up. The defects appear to be that excessive dust is made by the mode of filling the hopper from the trucks, by the employment of a "beater" to keep the red lead from hanging in the hopper, and by the use of "buckets" on the elevator. The red lead is "handled" (by the machine) too much; it may, I think, be taken as an axiom that "the less the handling the less the dust."

Chemical works.

I am referring, under fatal accidents, to the case of a man who fell from an unfenced gangway into a vat containing hot liquid.

In July two men were "gassed" by an escape of sulphuretted hydrogen in a chemical works. A man was working on a platform above a "carboniser" which had been under repair; the tap admitting the gas had been left open; the man was seen to fall, and another man went to rescue him without a respirator on. The respirators are kept in a cupboard in the engine house, and when I visited these works a month before this accident I had condemned this plan, and suggested that they should be kept in more easily accessible places. This had not been done, and had it not been for the fact that there was a cylinder of oxygen at hand one of these men would have died; as it was it was eight hours before they got him round. Since this affair one of "Tower's" (of Widnes) "Respirators" has been placed on each platform, as well as one in the engine house.

The constant changes of plant in most chemical works renders frequent inspection necessary.

Mr. Parkes (*Nottingham*) also draws attention to a want of attention to cleanliness among the workers. He further advocates the provision of lavatories for all trades :—

General.

The works under Special Rules have been remarkably free from accidents, three only having been reported during the year in aërated water works. In brass works, chemical works, earthenware works, and india-rubber works, no accidents have occurred, and no illness due to the nature of the work has been reported from the departments under Special Rules.

Aerated water.

The workpeople in mineral water works, especially women, are gradually getting accustomed to the use of the guards, which at one time were looked upon as objectionable and disfiguring.

Brass foundries.

In brass works there is some difficulty in persuading workpeople to wash themselves systematically before meal times, but this habit will doubtless be established in the near future.

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I am strongly of opinion that the provision of washing conveniences in certain special works should be extended to all works where dirty processes are carried on, so that all respectable workers can turn out of the works into the street in a cleanly condition, leaving the dirt and grime behind them.

Mr. Hilditch (*North Wales*) sends some interesting details, and points out some difficulties not quite overcome:—

Red lead, &c. works.

Considerable improvement has been made in lead works in the district during the year, more especially in the matter of better arrangements for packing red lead, &c. The plant recently put down for this purpose at Messrs. Walkers' Parkers' works, appears to work very satisfactorily. Further improvement is necessary, however, in the system of feeding the dry-grinding mills. As carried on at present, the person feeding the mill raises the material with a scoop to the hopper, which is about level with his face; consequently, on discharging each scoop, a quantity of dust is given off. The mills are all cased in with wood, covered with sheet lead. This casing is at present connected by a tube to the boiler chimney, but there is not sufficient draught to draw the dust inwards after the discharge of each scoop. I have suggested that the mills be connected with the packing fan so that a powerful draught may be carried through the feeding hopper. This suggestion is to be carried out.

It has always been a mystery to me why the screening and packing of litharge was practically excluded from the Special Rules. The processes may not be so dusty, but the monoxide appears to be quite as injurious as the tetroxide.

In the early part of the year H.M. Supt.-Inspector, Mr. Redgrave, went into the matter thoroughly, and suggestions were then made to adopt some means of screening and packing in connection with a fan. After considerable time and trouble in following the matter up, I am pleased to report that the suggested arrangements are now practically complete.

Washing arrangements.

Considerable improvements have also been carried out during the year in the matter of washing conveniences in different parts of the works, and with the exception of the smelting departments the accommodation may now be considered satisfactory.

Three cases of lead poisoning have been reported from these works during the year. The third case reported was that of a litharge screener. The other lead smelting and red lead works have been closed during the whole of the year.

The symptoms of lead poisoning appear to be now so well known to the men, that, I fear, unless the case is severe and calling for the service of a doctor, there is a desire on the part of the men to report causes of absence from work as being due to other causes. This is probably owing to the action of occupiers in putting hands shewing any predisposition to lead poisoning to other less remunerative work, or discharging them altogether.

Earthenware.

The washing conveniences in the small earthenware works of the district have been improved by the addition of a supply of hot and cold water laid on by tap, and means to run the waste water off, but the arrangements generally are still of a primitive character. I have had to caution occupiers for allowing food to be eaten in a place where dipping is carried on. I am afraid that this is far too common in these small places, the part used for dipping is also used for drying, and as the shed must necessarily be kept warm, there is always a temptation on cold days to take meals there.

Plumbism.

In only one of these five places is there a mess-room provided. No cases of lead poisoning have been noted by the certifying surgeon.

Improvements have also been made in the matter of washing conveniences in encaustic tile works. No cases of lead poisoning noted during the year. All the lead is fritted at present, and successful experiments have been made with leadless glazes.

Frits.

Experiments have also been made with fritted lead in some of the small earthenware works, but have not been at all successful. The body clay apparently cannot stand the temperature necessary to make the fritted material flow.

Chemical works.

Special Rules are, on the whole, very well observed in these works. On recently visiting the chlorate of potash department in one of the works in the district, I noticed what appeared to me to be very risky work carried on in the mill, viz., dressing the millstones. With almost every blow from the dressing hammer sparks are given off from the flinty particles in the stone. Having regard to the fine chlorate dust present on the floors, adhering to the walls and the stone itself, it is doubtful as to whether the work is free from danger.

I discussed the question with the manager, who informed me that when he first took charge of the works the possibilities of fire from this source occurred to him; and, consequently, he tried several experiments on the spot, but failed to fire the chlorate dust from the sparks produced. I am still unconvinced, though, that the work can be carried on with absolute safety, especially after reading evidence given in a recent action in connection with a fire and subsequent explosion in a chlorate house.

I have suggested that the stone should in every instance be taken out of the building for the purpose of dressing.

Fencing of vats containing hot or corrosive liquids is well maintained.

Aerated water.

Special Rules are fairly observed as far as the provision of guards by occupiers is concerned, but the majority of workers still regard the using of same as being irksome. One accident

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only has been reported through the bursting of a bottle during the year. This occurred to a labeller who had the palm of his hand badly cut. Arm-guards were provided in this case, but were not worn.

Paint works.

I have had to complain of inadequate washing conveniences in one of these works, but as the firm are building new works and promise to put in suitable conveniences, I did not press the matter.

Brass foundries.

There are very few places where brass-casting is carried on separately from the iron-casting shop. In places where it is done in a separate shop, the Special Rules appear to be fairly complied with. In other places I find soap generally provided, but seldom a towel or nail brush which can be described as satisfactory. The most favoured method of washing the hands (when done) is under a running tap. This is not in strict accordance with the Special Rules, but decidedly preferable to washing in such water as is usually found in the basin, which has been used by several hands previously.

Mr. Wolfe (*Birmingham*), again calls attention to the indifference as to proper washing conveniences :—

Aerated water.

The number of accidents continues very small in relation to the number of workers. This is due, I think, to the more stringent precautions taken by the workpeople in the wearing of safeguards, and even more to the better guarding of the machinery in use.

The wire guards in general use for protecting the face are by no means ideal, and in hot weather must often be positively painful to wear owing to their proximity to the face preventing free ventilation.

I have heard also many complaints as to their bad effect on the eyesight.

Brass foundries

Each succeeding year seems to lessen somewhat one's task as to the carrying out of these special rules, but as the industry is a very large one so it behoves us to keep a very keen eye open to detect possible evasion of the rules.

The construction of new casting shops shows us that so far as they can the owners are anxious to provide lofty and well ventilated shops. In fact, in cold weather I have found the men complaining about the ventilation being too thorough, and in one case I found they had stretched canvas over the louvres to prevent the draught.

Buckets, I am glad to say, are gradually drifting to their proper uses, and "metal basins," as such, generally in the form of enamelled bowls, are being provided for the casters to wash in.

In the newer shops, too, one occasionally comes across a generous owner who, while building the casting shops, did not forget a little lavatory close alongside for the use of the men. If all the work were carried out in this spirit our task would be more than half reduced.

It is so disheartening at times to argue with the men about cleanliness, and I believe one who does wash regularly and systematically is rare, for he is always pointed to with pride by the owner, and certainly in nine cases out of ten he is a man whose healthy appearance ought to be a good example to others.

But I fear we shall never get our ideal caster until the special rules are specified in plainer language.

The metal basin should be one fixed under a tap and provided with an outlet pipe, and it should be put under cover somewhere, opening off, or at any rate close to, the casting shop. I can certainly sympathise with a caster who is expected to go out of a hot casting shop and perform his ablutions in the open air. We shall never persuade men to wash unless the conditions are satisfactory, and I am sure the employers could do a great deal more than is done to persuade the men to become more cleanly. The employers in many cases look on special rules as a hardship imposed on them by the Government at the request of the men's union.

It is useless to argue with these. They, however, carry out the special rules as badly as they can. A caster is given a bucket for his shop, and is told that there is a tap near the end of the yard some distance from the casting shop, and soap can be got in the warehouse.

That is hardly an ideal way of carrying out the requirements of the rules, and one cannot wonder that the bucket degenerates into a sand bucket, and the men say they prefer to wash at home.

If employers took the trouble (as some do) to see that the basin is kept clean and in constant use, that the water is handy to the casting shop, that a constant supply of soap is given out to the men, and a word or two of judicious praise is thrown in now and again, the men would soon be educated up to the required standard.

About the cleanest workpeople in Birmingham are the jewellers, and why ? Because it pays the employers in £ *s. d.* to see that everyone who handles jewellery washes before he leaves the workshop.

If the dirt from the casting shops were as valuable as that from the gold and silver workshops there would be no difficulty in making our casters clean. The employers would see to it then.

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Mr. Evans (*Birmingham*) refers to the inattention of workpeople to the provisions intended for their benefit :—

Earthenware.

The only factory which I have visited, which comes under the earthenware rules, has now affixed in the towing room a fan, which is found to be most satisfactory.

Brass foundries.

In many cases in the brass casting trade I have experienced difficulty in making the workers to see that the rules were framed for their benefit. I have on more than one occasion been asked "Why should I wash?" and usually by an old man, who, by way of emphasising his question, adds that he has been at the trade long before ever I was born, &c., which is somewhat disconcerting.

In one factory I found a lad cooking a chop over one of the furnaces in the brass casting shop; he quite failed to see anything wrong in his action, and was very grieved when I stopped him.

The only chemical works are so small as to call for no comment.

Mr. Brothers (*Birmingham*) offers a practical suggestion :—

There are 215 factories under special rules which I have to visit. These I have without exception visited at least twice during the year.

The application of special rules, or of recommendations, being in so many cases determined by the use of some poisonous material, it seems desirable that the materials used in a factory should be periodically inspected (by sampling and analysis) in the same way as the premises and machinery are periodically inspected. This becomes especially necessary where exemption from, or relaxation of, special rules is claimed on account of the use of non-poisonous materials, for most manufacturers are in the hands of the merchant supplying the article, being seldom in a position to prove its harmlessness. In only one case out of three where I find special consideration claimed on account of the absence of lead from the materials used is a chemist employed on the factory. At the other two factories, therefore, although the colours or enamels made on the premises can be vouched for, all purchased colours must be under suspicion. One is frequently told that an article—*e.g.*, putty powder—is "said to be" free from lead, but the occupier does not get an independent analysis, while he readily claims all the privileges attached to the use of harmless material.

Mr. J. L. Edwards (*Swansea*) calls attention to a mask which would appear to obviate headache and inconvenience to the eyesight:—

Aerated waters.

I find that the bottlers generally object to wearing the face-guards. I recently saw at one factory a guard which is a great improvement upon the ordinary "fencing-mask" shape. This guard is about 15 inches in depth and does not touch the head or face. The lower edge, which is shaped, rests on the shoulders, and is fastened over the shoulders and at the back with straps. It is light in weight, forms a complete protection for the throat (a point overlooked in the old shape) as well as the face, and has also the advantage that it exerts no pressure on the head of the wearer.

DANGEROUS TRADES.

This subject differs from its predecessor, inasmuch as here we are generally dealing with suggested remedial measures instead of those in force under an Order of the Secretary of State.

There will, however, be found some details in the subjoined reports referring to plumbism in occupations subject to special legislation.

A great deal of lead poisoning occurs, and is referred to in the course of our usual duties, among a class of out-door hands such as house painters and decorators, and with the conditions of this class of labour we are unable to deal; hence much confusion arises in the minds of persons interested in the matter, as they are quite incompetent to trace the incidence of the malady, and to separate cases referable to causes anticipated by our legislation from those beyond its scope. All this, however, is probably dealt with by Dr. Legge, and I need not enlarge upon it.

Independently of the general interests of the subjects reported on, I would call attention to the special notes on—

The use of chrome in boot finishing, by Mr. Sedgwick and Mr. Walmsley;
A new white lead process, by Mr. Ashworth;
Protection from explosion in varnish works, by Mr. Rogers;
Improvements in the construction of tuyéres, by Mr. Jackson;

all of which present new features.

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A special report has been made on glass polishing during the past year, and this I present before dealing with the other subjects treated by the staff under this heading.

Glass Polishing.—In accordance with your instructions, considerable attention has been given by H.M. Inspectors to this branch of trade, and the recommendations of the Dangerous Trades Committee with regard thereto.

Notwithstanding the fact that a few firms have finally decided to cease the use of putty powder, about two-thirds of the trade still believe in its virtues, and are unable to satisfy themselves that a proper crystal lustre for fine work can be produced by leadless substitutes. In these circumstances we must content ourselves by minimising the risk incurred by its continuance as a polishing powder. It is not necessary here to recapitulate the result of the investigations of the committee, or those of Mr. Osborn and Dr. Legge. The trade have been made fully aware of the views of the Department, and in a large number of cases have recognised the importance of the question by adopting measures for the protection of their workpeople. This spirit has considerably assisted H.M. Inspectors in their endeavours to ameliorate the conditions of this branch of occupation.

In the course of last year's enquiry 72 glass works have been visited; four of these were found to be without cutting or polishing processes.

Out of the remaining total of 68 there are now only 46 in which putty powder is still used. The following table shows how far precautions are taken in both classes of works, and the number of instances in which young persons are employed :—

	Works in which Putty Powder is used.	Works in which *no* Putty Powder is used.
Total number	46	 22
Works in which fans are fitted... ...	22	 0
Works in which hoods and boxes are provided	31	 1
Works in which automatic feeds to brush are used	6	 0
Works in which young persons "feed up"	8	 4
Works in which washing accommodation is provided	44	 10
Works in which overalls are worn ...	7	 4
Works in which young persons are employed in polishing	21	 8

In some places, where hoods or boxes are not provided, splash boards have been fitted to catch the spray; this arrangement is said to be fairly efficacious in some instances, but cannot be as satisfactory as the hoods.

The cases of plumbism reported during the last three years are as follows :—

1898	15
1899	11
1900	8

showing a gradual reduction. According to the details of each case in 1900 the symptoms

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were not always attributable to the manipulation of putty powder, as is shown in the following table:—

CASES OF PLUMBISM REPORTED.

No.	Initial.	Occupation.	Details as to Factory.
1	J. S.	Not a glass polisher; worked on lead casements.	Rouge only used; *no putty powder.*
2	T. A.	Worked on acid polishing for last three years; not on putty powder for a long time.	Putty powder used; hoods and fans fixed.
3	G. W.	Worked as an engineer	Putty powder only used; hoods and fans fixed.
4	W. C.	Worked as a glass maker	
5	C. S.	Worked as a glass cutter	
6	J. B.	Worked as a glass cutter	
7	A. B.	Worked with lead paste used for adhesive purposes.	*No putty powder used.*
8	J. E.	Worked as a glass cutter	Putty powder only used; hood and fan fixed.

I subjoin reports and notes from H.M. Inspectors in whose districts the investigation has taken place, and who have forwarded the results on the tabulated forms supplied to them for the purpose, from which the foregoing details have been extracted.

Mr. Knyvett (*Birmingham*) informs me that his lists refer to the use of 109 vertical and 21 horizontal wheels, and the persons employed in connection with them are 221 men, 1 woman, and 9 male young persons, and proceeds:—

Plumbism.

It should be mentioned that there were in 1898 three reported cases of lead poisoning from places where the use of putty powder is denied, and there were a like number in 1899. It is quite possible, however, that these were cases of men who had worked elsewhere with putty powder, and one of the firms alluded to has submitted a sample of the rouge used by them for analysis.

The absence of serious results from the use of the powder, the injurious effects of which are nearly universally admitted, may be traced to two causes. In the vast majority of cases the amount of putty powder used weekly or monthly will be found to be almost infinitesimal; and, secondly, in the places where the use is sufficient to have any effect on the health of the workers the precautions observed will be found to be extensive.

Washing accommodation.

It is further satisfactory to note that in most cases H.M. Inspectors who have conducted the enquiry have been able to report that the use of the washing appliances has been at any rate general, and that this has been so without the bestowal of any particular instructions, the men being quite alive to the desirability of cleanliness on their own account.

It appears that the polishing is almost universally done in the same room in which other processes, such as cutting, slitting, roughing, and the like, are carried on; and that, as a rule, the feeding up is done by hand and by the operator himself without the aid of a boy. The overalls commonly take the form of long aprons, mostly supplied by the workpeople.

One case, however, where I know that a considerable amount of putty powder is used, and where the ventilating arrangements are not such as have been suggested and almost enforced elsewhere, requires special mention. There have been some cases of lead poisoning at these works, and partly from this fact and partly from that that the firm occupy a leading position in Birmingham, the latter have received an exceptional amount of attention at various times from different Inspectors, Dr. Whitelegge having, among others, visited the works. No pressure has been put upon this firm to erect fans, for the reason that they built a room specially in the top story of their premises in which to use the powder, each man bringing his work up from the lower stories to do the polishing. The room in question is the most lofty and best ventilated room within my knowledge in which the process is carried on, and the firm have been told on more than one occasion that they may continue without the use of a fan pending further instructions, while, however, they must expect possibly to be obliged to provide one hereafter.

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Mr. Wolfe (*Birmingham*) gives further information as to the work in that place:—

Precautions. In the part of the district in which I have had the honour of working the four firms who do any considerable amount of polishing by putty powder have in each case erected special hoods with fans attached. In two of these cases the whole of the putty polishing is also carried out in a separate room. The feeding, too, is automatic and so does away with the use of boys. These cases leave little to be desired.

Splash boards. In the other cases, where no fans are used and splash boards only, we must, I think, consider each case on its merits. Most of them use very little putty powder; the average would be, I think, less than one pound per month. They are mostly cut glass manufacturers who employ from three to eight hands, and only occasionally have to do first-class polishing. The greater part of their polishing is done with powder of rotten stone or pumice, and only a final "colour" *Materials.* is put on with putty powder. In places where photograph glasses or carriage lamp glasses are polished no brush is used, but a wheel with a covering of felt on which the moistened putty powder is placed. Here the splashing, which is so conspicuous with the brush, is hardly noticeable, and a splash board seems to be all that is necessary to prevent distribution of spray.

Separate shops. A separate department for putty powder polishing might with advantage be insisted on at all these small places, and the provision of suitable overalls and washing accommodation. But I hardly think that the substitutes for putty powder have been exploited sufficiently. At the works of Messrs. Chance, Spon Lane, an enormous quantity of lenses for lighthouse lanterns is polished solely by rouge. These lenses require a very high and lasting polish, and if rouge is suitable here why not for other glass polishing?

Lapidaries. While on the subject of glass polishing I made enquiries into other trades where putty powder is used. I find it is used in small quantities by lapidaries, but the danger to health is very slight in this industry. The polishing wheels are enclosed, except at sides, by hoods, and the stones are fastened on to the sticks, which are held through the open sides of hood against the wheels. The workman here is standing at one side of, and some little distance away from, the wheel, and the hood absorbs all the excess of putty powder. These hoods are not, however, so placed from motives of health, but in order to catch the stones should they fly off the sticks.

Burnishing. Putty powder is also used in infinitesimal portions in the burnishing of electro plate. It is sprinkled on a leather pad on which the burnishing tool is rubbed prior to its use on the plated article. There is a source of danger here which might be mentioned. Occasionally, before rubbing on the powdered pad, the burnishing tool must be moistened. A basin of soapy water in always placed on the table for this purpose, but I have had to warn women of the extreme danger they incur by in some cases preferring to moisten the burnishing tool by placing it in their mouths.

Mr. Sedgwick (*Leicester*) reports in the case of two factories in his district that:—

No fans are used, the process being wet; boxes are not used, the speed being very slow. No feeding up is carried on; most of the putty powder is mixed with wax or pitch; rouge and pure tin oxide are also used; no overalls are worn; washing troughs and soap powder are provided; no young persons are employed.

Mr. Walmsley (*Stoke*) is able to announce the disuse of putty powder:—

I have again visited the Glass Company. The men say they have not used putty powder for over 12 months, and the manager assures me that polishing with rouge answers their purpose very well, and he does not intend to use putty powder again.

Mr. Ashworth (*Wolverhampton*) has some important works in the Stourbridge district of which he says:—

Putty powder necessary. In my district there are 20 firms who polish glass; 18 of these work 41 berths, in all of which putty powder only is used. These 18 all cut and polish table glass, and a very high lustre is required for this class of goods; and I have been assured by almost every manufacturer, that it is impossible to obtain the glass or lustre on the glass except by using putty powder. Substitutes have been tried, but the surface is dull.

Fans. In every place where putty powder is used fans are fitted, except in one factory, where the putty powder trough is connected with the chimney shaft with very good results.

I have been trying to obtain a minimum draft of 300 feet of air per minute at the brush with the latter stationary, and I have succeeded in every instance.

Automatic feed. In only one case is an automatic feeding brush used.

Substitutes. At two factories a substitute for putty powder is used and no fan is fixed. In one of them the work is done by females, but no lead is used in powder. In the second case rouge is used to polish the flat surface of all glass used, pumice stone and rotten stone for polishing the bevelled edges. A little putty powder is also used here, but not for more than two hours per week.

Plumbism. There is very little lead poisoning to record; some of the cases are old and chronic, which for a time have been recurrent, but I do not think that all could be attributed to the work.

In December last he writes that all the works in this district are in a satisfactory condition.

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Mr. Rogers has one factory at present "standing," as to which he can only report that:—

There are hoods over the wheels; about 1 lb. of putty powder is used per month; and washing accommodation is provided.

Mr. Jackson (*Walsall*) finds putty powder in use at only one of his factories, and writes in the following terms:—

Substitutes.

There were four firms in this district using putty powder. With the exception of one, the use of putty powder containing lead has been given up by the other firms. One of them experimented with a leadless powder, and found it would answer their purpose. A similar course was followed by the second, and a mixture of rouge and whitening is now used by the third. Putty powder is still used by the first mentioned firm. Numerous experiments have been tried, but they have not been able to obtain any suitable substitute; the quantity used is very small, only about half a pound a week. It is dusted on to the pebbles (which are mounted on to a pitch "block"), and a revolving concave disc covers and polishes them. There is no dust, and I am of opinion that the provision of suitable washing accommodation (if the men would use it, which they do not) and overalls, would meet the requirement in this case. It is carried on in a large room, wherein only two men are employed, and only one uses the powder, and that once a week for "finishing." He is a man over 70, and has been in his present situation over 30 years.

Mr. Parkes (*Nottingham*) has one factory in which he says that:—

No fans or hoods are required; no putty powder has been used lately; rouge and pumice taking its place; hot water is provided.

Mr. Pearson (*Lincoln*) is not confronted with serious risks to life from plumbism, &c., in his district:—

Plumbism.

The works in this district where lead poisoning is most likely to occur are letterpress printers, painters, carriage builders, and plumbers. In several of these works I have distributed the pamphlet, No. 406. and shall continue to do so when visiting, at the same time pointing out the necessity of cleanliness on the part of the workers. No case of lead poisoning has been reported to me.

Basic slag.

There is only one of these works in the district. Commander Smith paid a special visit early in the year; on my visiting in September, I found that, from his recommendation, the condition of the operatives had been much improved. The tops of the mills are well cased in, and the fan works satisfactorily, but the ventilation underneath the mills where the men are weighing and packing was still in an unsatisfactory state. I recommended a separate fan for this part, to which the manager promised compliance. Canvas respirators are provided, but the men refuse to wear them.

Mr. Sedgwick's (*Leicester*) experience on the subject of the use of chrome in boot finishing is interesting, and it is to be hoped that his efforts to show the risk incurred will have a lasting effect.

Plumbism.

In July, 1900, I received from the Certifying Surgeon notice of a case of lead-poisoning in Leicester. The patient was a shoe finisher, and had for a short time (10 weeks) used orange chrome as a stain in the finishing of the bottoms of children's boots. I visited the workshop where the man had worked, and obtained a sample of the chrome, and particulars of its use. It is mixed with gum and water until a liquid stain is produced. After standing for a time it is then put on the bottoms of boots with a piece of flannel or a like material. It dries rapidly. When partly dry another piece of flannel is rubbed briskly over the bottom of the boot until a gloss appears, which completes the process. When the worker is applying the stain his fingers are more or less covered with it. While the rubbing to produce the gloss is going on dust arises and is inhaled extensively by the worker. Up to the time of his attack of colic the man had been fairly healthy, but as a result of the use of orange chrome he had lain in bed for some time in a dangerous condition. I found upon enquiry that orange chrome is largely used by shoe finishers, who buy it from colour merchants in small quantities. These men take out work from factories and work in small shops attached to their residence. Young persons are not employed, and some of the workmen are continually moving from one shop to another, just as their work lies. In one of these shops I found four men, all then using the orange chrome I explained its dangerous nature to them, and asked them to give up its use. A subsequent visit was made with Dr. Legge, who examined the men then working, and indisputable evidence of the effects of the lead were found to exist, though in a minor degree. Since that time I am informed that the use of orange chrome has been discontinued, and upon recently visiting the colour merchants I was told that its sale to shoe finishers had nearly ceased.

Dr. Legge examined a number of shoe finishers in a factory where the bottom stains used are supplied by the makers or their agents, but in no case were any traces of lead-poisoning found. From the agents of the makers of these stains I received assurances that no lead or other injurious substance was used. I am of opinion that the sole cause of the cases which came under notice was the use of the orange chrome stain made by the men themselves. They use this because it is much cheaper than the stains supplied by the makers. The latter are

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comparatively harmless. In all workshops where I thought orange chrome was likely to be used I explained to the men its dangers, and the symptoms by which its effects were known, and have reason to believe that by the information so given the use of the chrome amongst shoe finishers has almost, if not entirely, been discontinued. Another case of lead-poisoning was reported from Loughboro', the patient being a coach painter's labourer, aged 41 years. He had been working with paints for about 26 years, and had been attacked with colic, &c., for several years, but more especially during the twelve months preceding my interview with him. He well knew the danger of the lead in the paints, and said he took all the care he could to avoid attack. The man had lost one arm, and this made it almost impossible for him to thoroughly wash his hand, and this largely contributed to his liability to the evil effects of the lead.

Dust in boot finishing.

My attention has been much directed during the past year to the dust arising in the boot finishing departments, and as to whether such dust is conducive to skin diseases. Verbal complaints have reached me that such diseases have had their origin in the dust which arises during the process of finishing boots by machinery. In one case the skin peeled from the palm of the man's hand. It was certified by the doctor who attended him as "skin rash." In writing me on the case the doctor said it might have been caused by chrome tanned leather. The patient said he thought the rash was produced by chrysoidine, an article used with water to produce a red stain for the edges of boots. In the course of many enquiries I have failed to find a case in which the use of chrysoidine has produced similar effects. In a second case a rash appeared on the man's arm, and he alleged that the dust arising in the finishing shop had caused this, because no such rash had existed previous to his working in such shop. I failed to obtain evidence which would justify the statement that the rash was caused by the dust as before mentioned. In a third case I was interviewed by a man whose fingers were blistered nearly from the tips to the knuckles. He alleged that this was caused by the use of oxalic acid and chrysoidine in staining the bottoms of boots. I suggested that he saw a doctor, and that I would further investigate the matter should the doctor corroborate his statement. The man did not return, and so I lost sight of the case. Subsequent enquiries failed to elicit evidence that the use of the stain so made had caused similar symptoms in others using it.

I am still watching the use of this stain, and should any other cases be found I shall take full particulars for the use of H.M. Medical Inspector.

Putty powder.

Putty powder is used in one factory in Leicester as a polish for high-class optical lenses. The firm have a well constructed new factory, with the most satisfactory provisions for washing, &c. Still the operatives for whose use the conveniences have been provided appear to be too apathetic to make use of them regularly. Standing near the lavatory just before a meal time, I noted how few availed themselves of the hot water, soap, &c., provided. Not more than three out of five took the trouble even to wash their hands before going to the meal. These men were not illiterate labourers, but in many cases intelligent skilled workmen. The workers with putty powder were examined by Dr. Legge, and in several cases the effects of the lead were found.

In this factory the taking of food between meal times is strictly prohibited, still some of the workers in putty powder frequently place food in close proximity to the powder, and, although well aware of the danger of so doing, eat the food whilst working.

Mr. Walmsley (*Stoke-on-Trent*) refers to the use of orange chrome mentioned by Mr. Sedgwick, and announces its disuse :—

Boot and shoe making.

Upon learning that cases of lead poisoning had occurred in the boot and shoe factories in Northampton, I made inquiry amongst the same class of factories in Stafford and Stone, and found that, with the exception of one factory, the use of chrome had been discontinued for some time. At this factory there are two finishers using chrome. The danger attending its use was pointed out to them, and I urged them to abandon it. They are now using harmless materials, such as are used elsewhere, and say the results are equally satisfactory.

Mr. Ashworth (*Wolverhampton*) describes a new white lead process in his district :—

Plumbism.

Plumbism.—There have been 38 cases of lead poisoning reported to me this year, particularised as under :—

Earthenware works	7
Glass works (polishing)	6
Paints and colours	4
File-cutting	4
Galvanising	3
Enamelled iron plates	3
White lead (Mander-Hannay process)	4
Various—such as coach painting, letterpress printing, &c.	7

One of the cases of lead poisoning in enamelled iron plate manufacture has turned out very serious—total blindness in one eye, and with only a very faint flicker of light in the other—it is practically total blindness.

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White lead.

I think I ought to draw attention to the four cases due to white lead. The manufacture of this white lead is entirely by a new process, called the Mander-Hannay process, and it differs so entirely from the ordinary method that Special Rules cannot be made to apply to it in any particular. It is claimed that this white lead is innocuous, but this is proved not to be the case by the four cases reported above. It is, however, claimed to be a very great deal safer for the workpeople than the old process, and it is explained that the cases that have occurred are due, firstly, to the experimental nature of the industry, and also to the inexperience of the workpeople; these conditions will disappear now, as the mode of manufacture is better understood by them; and it is also explained that much that is now done by hand will gradually be done automatically by machine, and so handling will be prevented to a very great extent.

It might be interesting to my colleagues if I described this new process. It has long been known that lead ore or galena may be partially volatilised and oxidised into a good white, but for one reason or another all attempts to establish the industry have failed to obtain permanent commercial success. Mr. Hannay, one of the experimenters who has devoted many years to this subject, has recently brought his experiments under the notice of a firm of colour manufacturers of this town, and they have gradually built up a large industry. The most important improvement recently discovered by Mr. Hannay is the method of insuring the total volatilisation of the ore and its conversion into a very pure white, somewhat resembling zinc white in its fineness of texture and beautiful colour, but which at the same time is a pure white lead. It is chemically a true ceruse, *i.e.*, it has the same basicity and constitution as the Dutch white lead, but replaces the feeble carbonic acid by the more stable sulphuric acid in the compound.

In former processes it was attempted to combine the production of pig lead with manufacture of a white pigment, and this complication was the cause of much of the uncertainty and failure of former processes. Mr. Hannay has, however, succeeded in converting all the ore into one product (white lead). So quickly can the conversion be completed that lead ore from the mines which was taken out of the railway wagons in the morning has been converted into white lead, mixed with oil, and used for painting a building in the afternoon of the same day.

The process is as follows:—The galena (PbS) or lead ore is heated in a furnace and volatilised, it then passes through oxidising chambers, in which air is sucked in by means of a fan, and lead sulphate ($PbSO_4$) is formed in fumes. These fumes are filtered through textile fabrics and is deposited in chambers as a very fine powder. This is shaken down by means of "shakers" into barrels. The process is very interesting, and great care is required in regulating the exact amount of oxygen that is required to properly oxidise the lead, as if too much, or too little, is allowed to enter the oxidising chambers the resultant is not pure white, but may be of all shades, from grey to black.

Mr. Rogers (Derby) is enabled, by the courtesy of the inventor, to describe and illustrate a protection to workers against combustion in varnish works, which appears necessary and valuable; it is to be feared, however, that the precaution suggested does not at present find favour, but time and accident may work a revulsion of feeling on such an important point:—

Varnish making.

The dangerous process in varnish making appears to be that of mixing the liquid gum and oil, which is done when the ingredients are at a temperature of about 400° Fahr. After the oil has been added to the gum the vessel containing the mixture is wheeled over an open fire in the floor of the room and the contents heated to about 500° Fahr., being carefully stirred by hand and watched in the meantime. It is, I am informed, either during this stirring process or while the hot oil is actually being poured into the liquid gum that the fires occur. They frequently take the form of a single spurt of flame from the heating vessel. The fires are caused either by combustion in the vessel itself (probably through the ingredients being of different temperatures) or by the fumes escaping from the necessarily open lid and coming in contact with a light.

Messrs. Ellam, Jones & Co. provide their varnish makers with head coverings or helmets made of fire-proof (asbestos) cloth, and fitted at the front with a thick glass window held in a brass plate, to which the asbestos cloth is attached, These helmets, which appear to form a most desirable precaution, were made by Messrs. Davis & Co., Ltd., Canning Dock Works, Liverpool. By Messrs. Ellam's courtesy I am enabled to enclose a photograph of a man wearing one of the helmets. It will be noticed that leather gloves are also worn. I am told this latter precaution is taken in most factories, but not the wearing of head coverings.

Plumbism.

During 1900, *29* cases of lead poisoning were registered in this district. *Eighteen* cases occurred to painters of various kinds, many of them being railway coach-body makers, who coat the joints of the vehicles thickly with lead paint before putting them together. I have urged the use of non-lead paint wherever this is practicable. There are now several harmless white and other paints on the market which may, for many kinds of work, be safely substituted for lead paints. Four cases occurred in white lead works, two in an electrical accumulator works, two to brass finishers, and one each in a bullet works, lead smelting works, and letterpress printing works. The last-mentioned case terminated fatally. It occurred to a young person employed as a compositor, and he apparently was affected by handling the type and by the dust therefrom. He was in the habit of taking meals in the factory without previously washing, though means for doing this were provided. Section 30 of the 1895 Act, which requires washing conveniences to be provided in all works were lead is used, has been carefully explained in printing factories and other places where lead was found to be

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handled or used, and many instructions on the subject have been issued. The four cases in white lead works occurred in factories where great improvements have been effected during the year. Extra fans have been fixed in both factories, and other alterations which will restrict the danger of injurious absorption of lead have been carried out.

Mr. Jackson (*Walsall*) touches on several subjects in this connection, and gives an interesting account of a new method of vacuum water supply in blast furnaces :—

Plumbism. The only case of lead poisoning which calls for remark is that of a man who was employed in a bridge and girder works. He started to work there as a painter on 12th July, 1899, the paint he used, as a rule, was made of red oxide of iron, but for about 5 per cent. of the work paint made with red lead was used. He was ill in October, 1899, and left his work, returning on 10th January, 1900, when he continued to work as a painter until March 7th of the same year. He was again away ill until May 9th, when he started again, but on May 14th was reported as suffering from lead poisoning, he ceased to work, became paralysed, and died on the 28th September following. A post-mortem and analysis were made, the evidence being that in each of the organs lead was found—the greatest quantity in the kidney. A verdict of death from lead poisoning was returned by the coroner's jury, but I was at a loss to understand how lead poisoning, so acute as to cause death, could result from work in which so little lead was used as in this case. Later events have, however, made this clearer—the man was a public-house keeper, and obtained the beer he sold from a brewery since suspected of supplying beer contaminated with arsenic ; he was a heavy drinker, and upon talking over the case recently with the doctor who made the post-mortem and analysis, he admits that in view of later information, death may have been due to arsenical poisoning.

No cases of lead poisoning were reported from workshops. From factories the following were received :—

Red lead works	reported	2 cases.
Letterpress printing works—using linotype machine ...	,,	1 case.
Harness furniture manufacture (platers)	,,	1 ,,
Construction works (with power), to a house painter ...	,,	1 ,,
Total		5

A visit was made, and report sent on each of the cases reported.

Polishing shops. Attention has again been given, during the year, to the removal of dust from the polishing shops, and though improvement is slow, it is satisfactory to know that there is an improvement in this matter.

Plating. The provision of suitable washing accommodation for brass and silver platers (who use lead) in harness furniture trade has also received attention.

Blast furnaces. Many very serious accidents have occurred from time to time from explosions inside blast furnaces. About 30 years ago about 20 people were killed at a works in this district from this cause, and about two years ago a man was killed at another works from the same cause. Early in the year the firm where the latter fatality happened called my attention to a new (patented) arrangement that they had adopted for cooling the "tuyéres" used in their furnaces. *Tuyéres.* These explosions appear to be due to the water, used to cool the "tuyéres," leaking into the furnace and coming into contact with the molten iron. The usual arrangement is to *force* the water through the pipes round the "tuyéres," and if these pipes burn through (as owing to the great heat they are very apt to do), the water is then forced inside the furnace. The new method is very simple ; the water is drawn through the pipes by *suction*, so that a burst or a burn in a pipe stops the suction and the water falls back into the well. It *cannot* go into the furnace. Practical experience for nearly a year has proved most satisfactory, and I feel sure that in this simple arrangement is to be found the solution of one of the great sources of danger from blast furnaces.

This has been dealt with by Mr. Jackson more fully in a special report made to me early last year, which is subjoined :—

Tuyéres. A firm recently asked me to pay a special visit to their works to see their new patent for preventing explosions in connection with tuyéres of blast furnaces.

In view of the excellent arrangement they have patented, and of the numerous serious accidents from explosions in blast furnaces (there was one recently, I believe, at Leeds, and also one two years ago at these works), I thought the matter called for special report.

I may explain that a "tuyére" is the pipe which is inserted inside the furnace and through which the air or blast is forced which is required to reduce the metals. To prevent the pipe burning away it is wrapped round with a coil of wrought iron pipe, through which, when at work, water is forced. If by accident the molten metal in the furnaces comes in contact with this wrought iron pipe it "bores" a hole into it through which the water is forced into the furnaces, and unless quickly detected an explosion follows.

Many explosions in furnaces are attributed to "scaffolding," or the sudden fall of the unreduced ore, when the blast is taken off ; but knowing that water is used for cooling both the "tuyéres" and the coolers, it would appear that this escaping into the furnace and coming into

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contact with the molten iron, &c., is more frequently the cause. In the accident referred to at these works the explanation given at the inquest was "scaffolding," but a later examination showed that the "cooler" was bored, and the accident was therefore most probably due to this cause.

The "tuyéres" are usually fed from a large tank on the top of the engine house, so that the water is forced through them at some considerable pressure, and in the event of a hole being made in the water pipe escapes into the furnace with some force.

The plan adopted in Messrs. Bradley's patent is just the reverse. Connected with the *outlet* pipe is a steam injector which is so arranged that it *sucks the water through the tuyére pipes* up from a well below. The difference in arrangement is very small, but in result is very great. If the "tuyére" becomes "bored" or "drilled," instead of water being forced into the furnace the flame is drawn on to the hole—which experiment shows it frequently reseals. If, however, the hole is a large one the action of the injector is stopped, and the water (being lifted from below) falls back into the well. It *cannot get into the furnace.* There is another advantage, viz., that any interference with the work of the injector, by reason of the "tuyére" pipes being burnt, is at once shown at the outlet pipe, when it can be seen by the attendant and the defective "tuyére" removed.

They are able to pass double the quantity of water through by the new plan, thus prolonging the "life" of the "tuyére." I saw one at work at my visit which the firm informed me was "drilled" three weeks ago, but was still working well as the hole had made itself up. Under the old plan it would have to be at once removed.

Electric works.

There are now in this district one high pressure electric generating works, and 65 where low pressure is generated for lighting and power, also a large plant for lighting and power upon the "three phase" system of 250 volts. Only one minor accident (from low pressure) has been reported. The Committee's recommendations have been placed before the management of both the high pressure and the "three phase" generating stations.

Glass polishing.

The only works now using putty powder in this district is one where the glasses for spectacles are made. The amount of powder used is very small, and excellent washing accommodation has been provided.

Flour mills.

There are six flour mills in this district; these have now all been visited with respect to the Committee's recommendations.

Wheat is "brushed" in four and "washed" in two mills.

Recommendation i.—Except for a long "worm" in one mill all appear to be in conformity as regards the covering in of wheat cleaning machinery.

Recommendation ii.—In three mills all bins are provided with hopper bottoms; in two others only some of the bins are so provided; in the other mill they say no bins are used.

Recommendation iii.—In no case was it found that dust chambers were cleaned out while the machinery was in motion.

Only one mill uses a sack cleaning machine, the others do their sack cleaning by hand.

I found "sack jumpers" in use in three mills, but not in other two, and another fill their sacks both with and without "jumpers."

File cutting.

The majority of these places are still a long way from being in conformity with the the Committee's recommendations. Washing accommodation is provided, but it is often very far from satisfactory, and frequently does not appear to be used.

In a few shops the number of blocks has been reduced, bringing the air space nearer to the 400 cubic feet recommended, and the blocks to about 3 feet apart. In the majority nothing has been done at all.

Grindstones, &c.

I am referring under the head of "Accidents" to the only known case of the bursting of an emery wheel; I have not heard of any grindstones bursting. The use of wedges for hanging grindstones still continues in a number of places, fortunately without occident. The only improvement that I have noted in the direction of the Committee's recommendations has been in the storage of the stones. I find that many firms now store them lying flat, with blocks between each stone, but generally in the open air. The users of solid emery wheels have been advised to obtain a guarantee from the vendors as to the safe speed the wheels may be run at. They have also been instructed to guard, to prevent the pieces flying should the wheel burst.

Water gas.

In ten works in this district water gas is manufactured for use on the premises, and two gas works have now erected plant for its manufacture for sale.

In one of the former works, in May last, three boys were "gassed." The gas is used both for gas engines and for japanning stoves. During the breakfast time some of the boys were playing "hide and seek," three of them (the eldest only 14 years old) went into the room where the japanning stoves are—this room contains 2,496 cubic feet—the other boys then, for fun, fastened the door. To find out who had done so, one of the boys climbed up on to the top of the stoves (they were not in use), and in doing so must have put his foot on one of the taps and turned it on. Upon examination after the affair these taps were found to be defective, being loose and some without stops. One of the boys became insensible and the other two took

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alarm and tried to get out; failing to do so one of them broke the window and called for help Two were then insensible, but the medical man was called and the boys were quickly brought round, little the worse for their experience; they had been in the room about 45 minutes, but I do not know for how long the gas had been escaping. The gas is not odorised and has little smell; no oxygen cylinder was kept.

Mr. T. O. Edwards (*Cardiff*) gives an interesting note as to transformer stations:—

Electric works.

The high tension stations in this section of the district being the property of wealthy corporations there has been no difficulty with regard to the recommendations of the Dangerous Trades Committee, 1897.

I was informed by the Electrical Engineer to the Cardiff Council that the local transformer stations complied with the recommendations, and I therefore did not inspect them, but as regards the sub-stations, I quote from the report of the Electrical Engineer to his Committee:—

> "Many of the sub-stations are veritable death traps. In many cases there were switches and fuses entirely unprotected, with a potential of 2000 volts across the terminals. In one sub-station there was a pair of high pressure cables slung across the sub-station and tied up to the metal ladder by which access is gained."

During the year there was one case of electrocution in the district (at the Newport generating station). The deceased was an electrician, and was engaged at a dead panel behind the switchboard tightening a terminal nut by means of a spanner, in doing so his knee came in contact with a live terminal on the adjoining panel thereby making a short circuit.

Mr. Hilditch (*North Wales*) shows particular care in improved conditions of work in these trades:—

Basic slag.

In my report for 1899 I referred to the improvements carried out in dealing with the dust at these works. The arrangement as then reported has been supplemented by a system of screw conveyors which distribute the dust to the different mills as it is discharged from the cyclone dust collector. The finer dust by this means is more uniformly mixed with the coarser material discharged from the mill. This was formerly done by shovelling the material into the mill, or mixing it with other ground material on the floor of the shed, an operation which naturally created a quantity of dust. A form of respirator which the men appear to favour is made of two layers of the material known as cellular cloth. It appears to be a very suitable respirator where dust of this nature is given off.

Esparto beating.

The quantity of dust generated in this process was also referred to in the 1899 report. I am pleased to say that a decided improvement has been effected during the year in this respect. Although not as satisfactory as one might desire, much less dust is thrown into the sheds than formerly. The principal fault I find is, that after fans have been fitted and started successfully, not sufficient attention is given to the cleaning of the exhaust tubes leading from them. Sharp bends in tubes often fill up with dust, thus rendering the best fan ineffective. I have recommended that wherever bends or elbows occur a small sliding or hinged door be fitted so as to facilitate cleaning.

On approaching a mill recently I observed that the exhaust tube was carried outside the mill, delivering the dust on to the surface of a stream. The fan appeared to be doing very good work, as a considerable volume of dust was ejected; but owing to the mouth of the tube being too high above the surface of the water the wind which was then blowing towards the mill raised a quantity of dust, driving it through some open shutters into the rag-sorting room. This was remedied by carrying the outlet down within a few inches above the highest water level.

I merely refer to these simple matters in order to show how easily any arrangement of this sort may be rendered quite inoperative by inattention to minor details.

Exhaust tubes.

In another recent case at a forage mill I found that the chaff-cutting machine was enclosed at the bottom, and connected with a fan to draw off the dust. Noticing the quantity of dust floating in the mill through which one could scarcely see anything, I examined the tubes which delivered the chaff into sacks. On removing one of the sacks from the tube I found that all the dust was being blown in together with the chaff. The exhaust tube in this instance was completely blocked at a bend.

Glazed bricks.

Washing conveniences in the glazed brick works in the district are not very satisfactory. Occupiers are rather loth to go to any great expense, as the matter of leadless glazes is occupying their attention at present. With reference to this, I am pleased to report that considerable advance has been made during the year. I am informed that, with the exception of the chocolate colours, the glazes used are now all leadless; and it is hoped that this difficulty will be overcome shortly. It is noteworthy that the leading firm in the district in this trade have not used lead for some years in their glazes.

Boric acid.

Owing to the brisk demand by the Government for this substance during the year, a local firm of carbolic acid manufacturers have restarted this department of their works after a stoppage of some years. In the grinding and screening of the crystals a considerable amount of dust is given off, which has a most irritating effect when breathed through the nostrils, and leaves an intensely bitter taste on the tongue. The works chemist states that it is not poisonous or injurious to health.

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Professor Thorpe, in his Applied Chemistry (vol. 3, page 234), gives it the following properties :—" Picric acid has a bitter taste, gives an acid reaction on litmus, and is poisonous."

I communicated with Dr. Legge on the matter, and I am carrying out his suggestion as to watching whether the men show any symptoms of jaundice, &c. So far the men say that they have not felt any injurious effects therefrom ; they further say that they are careful in washing their hands before meals.

Galvanising.

No special means have yet been adopted in the district to carry away the fumes from the galvanising pots.

Artificial manure.

As carried on in this district the grinding mills are enclosed with wooden casings. I have to make complaints at nearly every visit as to the quantity of dust given off in the grinding sheds, which is mainly due to want of attention to the open joints in the wood casings. The thing is remedied after complaint, but probably at another visit another part of the casing is defective, from which dust may be seen forced out in considerable quantities. If these small repairs were attended to systematically the atmosphere of the mills would be considerably improved.

A few years ago I got this firm to adopt a suggestion to ventilate their mixing chambers when they were being discharged. After some trouble I succeeded in getting them to provide stacks or chimneys over the chambers. These chimneys are moveable and can be shifted to a corner of the shed when not in use. The arrangement is much appreciated by the men.

Mr. Clark (*Wolverhampton*) refers to a common practice of fixing fans in the wrong place :—

Fans.

I have given special attention to the provision of fans in factories where dry grinding and polishing is done, and have had no great difficulty in getting occupiers to see the necessity of fans for removing the dust. I have found that while occupiers are usually willing to procure fans, they do not always apply them in the most judicious manner ; as an instance, I recently had under my notice a case where a fan, although successfully drawing the dust away from an emery wheel, was delivering nearly the whole of the dust back into the workroom in close proximity to the grinder. The occupier promptly agreed to remedy matters on the defect being pointed out to him.

Mr. Wolfe (*Birmingham*) presents some hopeful references to the production of leadless materials for various purposes :—

Plumbism.

During 1900 two industries have come under my notice which when better known may be the means of lessening the number of lead poisoning cases.

Disuse of lead.

One is a new process of manufacturing tin oxide carried out by Messrs. Wiggin & Co. at Smethwick. This oxide is particularly useful for the white enamelling of hollow ware. At present it is almost exclusively sent to Germany for that purpose, and the standard of purity is fixed at a high level, as one-tenth of one per cent. of lead would mean its rejection. If Germany can take this leadless enamel from us surely it would pay our local manufacturers to use it.

I believe a great deal of the disinclination on the part of English manufacturers to use leadless glazes and enamels is due to the fact that more heat and greater care are necessary to get results equal to those of lead glazes and enamels.

The other industry is that of leadless paints, which are made by Messrs. Docker Bros. at Birmingham. The great difficulty was to get a leadless paint with a "body" equal to lead paints. The industry is yet in its infancy, but the manufacturers state they have every reason to think that their leadless paints will be equal to lead paints in every way. At present the chief difficulty lies in the fact that the substitute does not as yet take up certain colours as freely as the lead used to.

A substitute for white lead for use in jointing and tenoning railway carriage work has been produced quite free from lead. This has been in use in one of the largest railway carriage works in this district for over three months and has given every satisfaction. It hardens off equal to white lead, and will stand sand-papering.

Other substitutes for white lead in this process have failed before because the paste was too soapy for sand-papering. Several dry colours also, and at least one vermilionette, have been produced free from lead. At my suggestion they are now experimenting on a leadless paste which shall be equal to white lead for the purpose of making joints in chandelier work. Should they be successful this prolific source of lead poisoning might become harmless.

Mr. Evans (*Birmingham*) contributes a photograph and plan showing a complete system of exhaust hoods :—

Fans.

I enclose a photograph and drawing (for which I am indebted to Messrs. Sutcliffe, of Manchester) of a very efficient arrangement for ventilating a polishing room at the factory of Messrs. Benton and Stone, which they have lately erected. As will be seen, each bench (the room contains four) has a wooden chamber or tunnel running along its whole length, and at the extremity connected with a fan (14 in.). Each mop is connected by metal hood to this chamber, the result being that all dust is drawn away from worker and into a box placed outside the wall of room. The bench is covered with sheet metal, so that any dust which may

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collect there can easily be swept into the mouth of the chamber. Also in cases where a piece of work may be awkward to handle on account of the hood, the hood and its sides can be disconnected and thrown back, the dust still being drawn away into chamber. This appears a very much more efficient manner of removing dust than by affixing a fan high up in the wall of a polishing room, as the action of such a fan must draw the dust upwards and across the face of the workers, while in this case the dust from each mop is separately drawn away and does not scatter through the room at all. The wheels used in the above-mentioned room are of leather and felt, and calico mops.

In one or two of the cycle works at Coventry a somewhat similar arrangement is used, but for the most part fans are affixed in the walls, which, while they remove the dust, frequently do so at the expense of some of the workers. For instance, in a long room the fan (usually found at one end) while extracting the dust from the stones at the far end must naturally draw that dust past the workers at the next few stones; whereas were each stone independently connected with a main air shaft having a fan working in connection with it this would be circumvented. One is informed that such an arrangement would interfere with the workers in some class of work, yet such an arrangement is used in some factories.

Sawdust.

In another factory—a sawmill—was a very neat arrangement for removing sawdust, &c. At different parts in the floor were iron plates about 2 feet diameter; these formed covers of shafts, which running below surface of floor were connected with a large extracting fan. When these covers were removed and the fans started it was a work of but few minutes to clear the whole shop of shavings and small pieces of wood, &c., which were drawn through shafts and deposited handy for the boiler furnace or packing into sacks. One great advantage of this system is that it requires such a small amount of work and time to clean the floor and to prevent an accumulation of small pieces of wood, &c., around the machines, which frequently cause a stumble.

OVERTIME.

This matter has not called for much comment among the Inspectors during the past year, but it has caused considerable anxiety and watchfulness to Mr. Jackson, of Walsall, in whose district the war has called for great exertions on the part of the manufacturers. The War Office demand for saddlery, belts, buckles, pouches, &c., of every description necessitated a relaxation of the ordinary conditions of labour within certain limits, and it has been his constant task throughout the year to watch and report on the observance of the limitations.

Owing to his vigilance, and doubtless in great measure to the confidence reposed in his administration, it has only been necessary to take proceedings in one or two cases of serious breaches of the arrangements. Similar duty was devoted on others of the staff, but in a less degree, and without calling for such continuous exertion and attention.

Mr. Knyett (*Birmingham*) refers to a mistaken view of a certain order respecting overtime at Coventry:—

Ribbon trade.

A curious condition of affairs has been brought to my notice as existing among the ribbon factories at Coventry, and which appears to have obtained for some years undisturbed. Permission to work overtime in accordance with the 53rd section of the Act of 1878, as amended by sections of the Act of 1895, was extended by order gazetted 14th March, 1884, to the processes of warping, winding, or filling, or either of them, as incidental to the weaving of ribbons in workshops, but no such permission was extended to the same processes if carried on in factories. It is difficult after the lapse of time to ascertain the cause or origin of the distinction, but I have learnt from a gentleman who formed one of a deputation to the Home Secretary at that time that what was sought was simply permission to work overtime in these processes, without any recollection in his mind existing as to the distinction between factories and workshops. Possibly in those days these processes were mainly carried on in workshops distinct from the factories, and that as the trade gradually declined it became a cheaper method of production to utilise rooms which had become vacant inside the factories for the processes. But through whatever cause, a practice came into force of regarding the room or rooms within the factory in which these processes were carried on as being workshops, for the purpose of using the overtime permission, and also as being free from all other provisions (such as the necessity of certificates of fitness) pertaining to factories only. There does not appear to have arisen any serious evil from this irregularity, and as the trade is in a very low state, there is but little, if any, opening for the use of the overtime sought for; but it would be better for the irregularity to be ended.

Mr. Parkes (*Nottingham*) compares the legal period of employment of women with that generally adopted by men:—

Advantage is taken in the dressmaking, millinery, and tailoring trades, to the fullest extent, of overtime privileges, but in laundries the ordinary legal hours of work appear adequate, and very little overtime is reported.

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SEPARATE DEPARTMENTS.

This subject divides itself into two heads :—

(*a.*) The separation of departments for the purpose of increased opportunities of overtime ; and

(*b.*) For the purpose of employing different sets of hands during a different period.

In the case of (*a*) there are no new developments, and the matter rests in *statu quo*, but in the case of (*b*) the advisability of allowing protected hands to adopt a later period of employment in warehouses of certain kinds has come to the front. Certain classes of goods, when fresh from the manufacturing process, require to be polished and wrapped up, and in this case it is necessary to work a little later.

As a rule the girls employed are not required during the first or second working hours of the day, but are necessary at the close of the factory hours to polish, wrap up, and store or despatch the finished goods ; as a rule these persons are of a somewhat better class than the other hands, and are not in the habit of coming to work so early, so that the later period of employment suits both the exigencies of the trade and the customs of the girls themselves.

The last modification is in regard to those employed on bright or burnished metal goods.

Mr. Jackson (*Walsall*) is particularly interested in this matter :—

Warehouses.

The order of the Secretary of State allowing us to grant certificates for separate departments for warehouses in connection with the manufacture of bright and polished goods has been much appreciated in this district, and as it becomes better known will, I feel sure, be largely taken advantage of. Cases like the following were frequent :—The works start at 6 a.m. and have breakfast from 8.30 to 9, the warehouse girls come at 8 a.m. and work on until dinner time; they are therefore at work during meal times, viz., 8.30 to 9, which would be illegal. I am of opinion also that this exception will do away with the sending of overtime notices by those firms who adopt it.

FIRE RISK.

The division has been, happily, free from disaster on this score. When one considers the enormous number of people cooped up in industrial premises for various periods between 6 a.m. and 10 p.m., it is a matter of congratulation that so few cases of loss of life from fire have arisen. The amount of heat generated for the purposes of motion, warmth, and light is incalculable, especially during the winter months ; the susceptibility of various materials and products to ignition by mischance is always present, yet very few mishaps have occurred in comparison with the existing risks.

It is not only in large many-storied factories that the danger lurks, but also in the small workshops in private houses, with but one wooden staircase for general use, and very primitive arrangements for warming and lighting. The most serious case in my experience occurred a few years ago, when a large open shop caught fire, and in a few minutes the occupants of a small workroom, *up one flight of stairs*, were overcome, two succumbing at once, the third being badly injured.

Mr. Knyvett (*Birmingham*) calls attention to the danger of fire in dwelling-house workshops :—

Dwelling-house workshops.

Although I have no places specially registered as being dangerous in view of escape from fire or panic, I am, as in previous years, unable to report any feeling of satisfaction with the condition of the many small tailors' shops in the district. The workrooms are almost invariably at the top of two flights of dark narrow stairs, down which exit would be practically impossible in the event of an unperceived fire breaking out in the ground-floor rooms. I am at a loss to know how to remedy this state of things, as the chief of the local

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fire brigade does not believe in such moveable escapes as are alluded to in the Act of 1895, and, naturally, I attach great weight to his opinion. It is true that there has never been a fatality in these shops from this cause during the many years I have been here, but this fact does not remove my anxiety on the point. During the year I personally discovered a workroom at Nuneaton in which 60 females were employed on the third floor in a room to which the only access was a winding staircase less than three feet in width.

Mr. Pearson (*Lincoln*) makes reference to portable escapes :—

Two factories and three workshops have been considered dangerous, the worst being an old five-story factory in Gainsboro', and now occupied by the Photo. Co., who employ several females. I have visited this place four times, and on the last occasion found that a "shoot fire-escape" had been provided in the top room. On my expressing a doubt as to its practicability, I was told by the manager that "all the females had come down it several times by way of experiment, and some of them rather liked it." I have revisited the other cases, and consider them satisfactory. *Fire-escapes.*

Mr. Sedgwick (*Leicester*) shows that precautions are not uncalled for :—

The year 1900 has not been marked by the occurrence of any fire in a factory or workshop in which loss of life, or injury to the persons employed therein, has taken place. Improved means of exit from factories and workshops continue to be made, under orders from the Local Authorities, in Leicester and other places in the district. In Leicester eight fires have occurred in factories, and four in workshops, during the year 1900.

Mr. Jackson (*Walsall*) gives details showing the value of powers in this respect :—

The means of escape in case of fire in works in this district, may now be considered to be satisfactory. Only seven places remain "D" on the registers (viz. six factories and one workshop), of these, three places have been approved by the local authorities as safe, an approval in which I cannot agree; two contemplate re-building; one is "D," in respect to doors not opening outwards or sliding, and in the seventh (a workshop), a moveable fire-escape will be provided.

I am pleased to say, that at a fire at a candle factory, which occurred during the year, the additional means of escape which had been provided at my request, proved valuable in assisting the workpeople to escape. They all got clear of the place without injury.

During the year 16 outbreaks of fire in factories or workshops, have come to my knowledge in this district, but, I am glad to say, without loss of life or injury to people employed in them.

Mr. Parkes (*Nottingham*) refers to a point of complication with the insurance companies :—

Twelve complaints have been sent to local authorities in regard to means of escape in case of fire. Of these, five have been remedied; the remainder are receiving attention. There appears to be a necessity for placing upon owners the duty of reporting any structural alterations of their premises. Cases have come to my knowledge where whole parts of a large building have been cut off from an exit formerly in use, in order to satisfy certain requirements of fire insurance companies.

Mr. Hilditch (*North Wales*) points to the dangers from fire where numerous assistants sleep on the shop premises :—

Two fires only have occurred in the district during the year, one at a writing-slate works and another at a saw-mill. No accidents in either case.

I have had to complain of inadequate means of escape in two factories and two workshops only during the year.

There are few factories in the district, where work is carried on to any extent, above the second floor. Dressmaking and tailoring workshops, carried on in private houses or in connection with retail shops, are usually found on the upper floors, and reached by one flight of stairs only. Owing to the small number of hands usually employed in these places, it is rather a difficult matter to get occupiers to make any structural alterations. Some time ago an occupier, who had been asked to make some better provision for escape in case of fire, argued that the law was somewhat inconsistent in asking for some special means for escape from a small workroom where six or eight hands were employed only by day, and nothing asked for in a case where twenty to thirty shop assistants slept on the premises during the night. *Dwelling-house workshops.*

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ACCIDENTS AND MEANS OF PREVENTION.

It is somewhat disheartening to note again an increase of accidents, as shown in the accompanying tables, notwithstanding the constant attention bestowed on the subject by members of the staff.

Return of Accidents Reported during the year ended 31st December, 1900.

1900.	Number of Accidents reportable to H.M. Inspectors and Certifying Surgeons.		Totals.	Number of Accidents reported to H.M. Inspectors only.	Grand Totals.
	Fatal.	Non-fatal.		Non-fatal.	
January	18	258	276	721	997
February	13	402	415	675	1,090
March	14	395	409	777	1,186
April	15	500	515	613	1,128
May	20	430	450	771	1,221
June	21	384	405	683	1,088
July	16	513	529	778	1,307
August	12	363	375	667	1,042
September	19	474	493	799	1,292
October	16	509	525	827	1,352
November	16	518	534	871	1,405
December	14	439	453	730	1,183
	194	5,185	5,379	8,912	14,291

Accidents, 1899 and 1900.

A.—Number of C.S. Accident Reports 1900	—	5,379
" " " " 1899	—	4,210
Increase, 1900	—	1,169
B.—Number of accidents reportable to H.M. Inspectors only 1900	—	8,912
" " " " " " 1899	—	8,569
Increase, 1900	—	343
(1.) Total number of accident reports received from the Certifying Surgeon by H.M. Superintending Inspector, and forwarded to the Statistical Office during the year 1900	—	5,803
(2.) Number of accidents properly reportable by the Certifying Surgeons and tabulated at the Statistical Office	—	5,379
(3.) Number of accidents investigated by the Certifying Surgeons which have been found to be reportable only to H.M. Inspectors, and included in class B.	—	424

Week by week their reports show how closely unfenced machinery and dangerous conditions are brought to the notice of occupiers, both verbally and by circular, and how these recommendations are followed up; yet still the mishaps keep ahead of our exertions. New industrial developments are constantly in progress, presenting conditions not

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previously contemplated; but at the same time other conditions are disappearing and falling into disuse, so that the balance should be nearly even; this, however, is not the case. For some time we have regarded the legislation touching compensation for injury to be an important factor in the publicity lately given to such occurrences; but this force has now been in operation some time, and must have become spent in some degree.

In view of the fact that we often find accidents *unreported*, it may be almost too optimistic to suppose that a large number of manufacturers, being scrupulous to keep within the requirements, are in the habit of sending notice of all such mischances, whether reportable or not, so as to place themselves fairly and squarely on the safe side. But I am inclined to think that this course is often pursued, though not to the extent of accounting for much of the increase.

One reason that has occasionally been advanced is the growing carelessness of workpeople in view of probable compensation; but this, though gravely suggested, does not strike me as being worthy of consideration.

The adoption of means of prevention has been steadily growing, and during the last twenty-five years the amount of fencing that has been done, especially in the metal trades, is astonishing. A great point will have been gained when the manufacturers of machinery themselves supply and send out the guards. A good deal has been done by way of urging this course upon them, and it is hoped that both the purveyors and their customers will see that it is to the advantage of both.

The very full reports on these subjects forwarded by the Inspectors show that a very large proportion of their time and interest is devoted to this important branch of their work.

Mr. Knyvett (*Birmingham*) analyses his returns of accidents, and gives his opinions fully on the subject, with which his experience enables him to deal :—

The required statistics as to the accidents which have occurred during the past year, have been duly forwarded in the other part of this report. Some additional figures may prove of interest, as illustrating the diversified character of the work in this district. The monthly tabulation shows the following totals and details of severity :—

	Accidents reported.	Fatal.	Reportable to the Surgeon.
January	193	4	72
February	209	5	91
March	230	3	102
April	175	4	66
May	219	2	108
June	208	2	95
July	242	3	120
August	205	2	94
September	239	3	108
October	284	1	124
November	261	3	123
December	229	1	103
Total	2,694	33	1,206

Fatalities. The 33 fatal accidents were caused as follows :—By use of, or caused by, locomotives 2, trucks and buffers 5, van 1, lift 1, crane 1, crane sling 1, erecting crane 1, grindstone flying 1, emery wheel, flying 1, shafting 1, circular saw 1, drawbench 1, shaping machine 1, escape of steam 1, fall of earth 1, clay mixer 1, falls from buildings and otherwise 12.

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To illustrate more fully the type of accidents, I add a table giving the details of those occurring in the heaviest month, viz., October.

A.—Reportable to the Certifying Surgeon.	No.	B.—Reportable to the Inspector only.	No.
Lathe work	24	Personal falls from buildings and otherwise.	37
Cogwheels	3		
Oiling machinery in motion ...	3	Fall or fracture of work or of tools.	59
Polishing mops	6		
Power presses	4	Hand presses	10
Circular saws	8	Hand shears	1
Molten metal	5	Foot stamps	5
Metal rolling	6	Other machinery or tools worked by hand or foot.	9
Drilling machines	4		
Planing, ditto	4	Other causes unclassified (35 of these were reported by the railways warehouses, and 2 of them occurred at the General Post Office.)	47
Belts and pulleys	3		
Steam cranes	2		
Grindstones	3		
Wire drawing	2		
Wire winding	2		
Draw bench	2		
Platen printing machines	2		
Shaping machines	2		
Milling, ditto	2		
Chopping, ditto	2		
Shunting (fatal)	1		
Punching machines	2		
Shearing, ditto	1		
Facing, ditto	1		
Crank shaft	1		
Crushing machine	1		
Lift	1		
Steam stamp	2		
Cornering	1		
Rivet machine	1		
Trussing	1		
Counter sinking	1		
Gear cutting	1		
Firewood bundling	1		
Explosion	1		
Shunting	1		
Screwing machines	2		
Traction engine	1		
Moulding machine	1		
Saw sharpening	1		
Traverser	1		
Pickling vat	1		

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Causation. It will be seen from this analysis, which is typical of the usual monthly record as regards the quality of the accidents, that the large proportion of the latter arise from (1) various processes which may collectively be called lathework; (2) warehouse work in connection with railways; (3) falls from buildings and in other situations; and (4) fractures and fall of work or machinery.

Lathes. A special return is required, in the statistical portion of this report, of accidents coming within the first of the particular classes just given; and I feel that the return in the form submitted, is calculated to convey an erroneous impression, if the information sought is as to the number of accidents caused by the gearing or by the change-wheels of the lathes. In accordance with the form, I have made a return of 165 accidents caused by lathes, and I am in considerable doubt whether some Inspectors might not have included other accidents, such as those arising from polishing, in the list, which thus might have reached even higher figures. A very small proportion of these accidents, however, were caused by cogwheels, either at the front, back, or side of the lathes, the large proportion being connected with the fixing or handling of the work or of the tools, and being absolutely unpreventible by fences or guards.

Building operations. The serious accidents to be found in the remaining class, viz., the third, are almost entirely connected with building operations. This matter has engaged the attention of the Coroner for the City of Birmingham, who is strongly impressed with the necessity of rules for the guidance of builders as to the proper construction of scaffolding, and the top and side protection of platforms. I have received the same opinion from master builders, who have gone so far as to ask for my orders on these points.

Lifts. Passing from these four classes of accidents to such of the latter as are of importance, without being numerous, I am reminded by the verdict given at the only inquest attended by me which demands special notice. In the case alluded to, a couple of lads were delivering goods to a printer who rented rooms on the upper floors of a building provided with a lift. On enquiry at the office upstairs, they were told by someone in the employ of the printer to bring the goods up, and that there was a lift. There was no one present in charge of the lift, and one of the lads with no knowledge of the mechanism, proceeded to use the lift, as, indeed, not being able to lose time, he was practically obliged to do. He started it in the wrong direction, and losing his presence of mind jumped out, or rather tried to do so, and was caught between the top of the cage and the floor, being killed almost instantaneously. I regard the want of care shown in the control of this lift as most iniquitous, and am extremely sorry that it could not be dealt with under the Act. I think that there should be rules prescribing that regulations for the management of all lifts defined above, should be clearly posted up on each floor by the side of the lift, that the name or names of the persons allowed to work the lift should be written on such rules, that all lifts should be provided with a clutching arrangement in case of accident, and with automatic doors, and further that the hoisting power of the lift should also be given on the notice. A rider was attached to the verdict on this occasion, expressing the opinion of the jury in favour of Government interference in the control of lifts.

Power presses. Power-press accidents continue to be very numerous in spite of the unremitting attention given by Inspectors to procure the substitution of hand levers for treadles, and the provision of practicable guards. They are largely caused by the foolhardiness of the workpeople who object to the levers and to guards. It is a common matter to find an improvised cord attachment from the treadle (in cases where this is retained for the cutting-out process, in which it is necessary) to the lever, or even to find a cord with a loop in it attached to the lever, where there is no treadle; while recently a case was brought to my notice of a girl passing her left hand, which was not required for the work, over a fairly high guard, to assist her right hand in removing work from the press.

Compensation. A pleasing incident in connection with a fatal accident at the works of Messrs. Willans and Robinson, engineers at Rugby, was afforded by the action of the firm in giving the widow of the deceased man compensation calculated upon what he would have been able to earn with overtime, although at the time of the accident he had only been in their employment a week. The sum given was £190. The accident had been caused by the slipping of a shear leg which was being raised in the yard of the works.

Fencing. I can find but little to say upon these points that has not been frequently said in former reports. Orders, which may be counted by the hundred, have been given unceasingly throughout the year in the district by my colleagues and myself; and although the fact is incapable of proof I have little doubt but that many accidendts have been thereby prevented. Of the large number of accidents investigated (and these have included all those caused by power presses or by wood-working machinery), comparatively few have been found traceable to the absence of fencing.

Of recent years the makers of machinery, influenced rather, I am disposed to think, by the Compensation Acts than by our presentations, have given increased attention to the provision of guards and fencing, together with the engines and machinery; and this fact has acted beneficially, not only so far as the particular machinery is concerned, but also in supplying us with examples of fencing to which manufacturers may be referred, and with a strong argument that such fencing is desirable, and moreover possible in the opinion of working engineers. It remains somewhat unfortunate that these latter, as a rule, continue to regard three feet as the proper and orthodox height for bar-fencing.

Also, probably in consequence of the working of the Compensation Acts, I yearly trace an increasing willingness on the part of manufacturers to acquiesce in our views as to the

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application of fencing. Whereas formerly it was almost the universal custom for a manufacturer to meet me with an *a priori* objection to innovation, based upon freedom from accident and supported by an appeal to a workman of 30 years experience, experience has taught manufacturers (in some instances expensively) that these foundations of opinion lack security, that the unexpected often happens, and that the workman of 30 years becomes a ready litigant in case of accident. And so, in the present day it is usual for them to, as they say, leave the matter in my hands. It is most rare, even in the much disputed point as to the application of guards to platen printing machines, for serious objection to be raised to my requests, whether personally made or through my colleagues.

Mr. Lewis (*Swansea*) has still to deal with a large number of accidents, owing to the heavy class of work and the incidents of dock labour :—

Totals. The total number of accidents reported to me during the year amount to 2,809, compared with 2,838 in the preceding year. Of this number 68 were fatal, compared with 60 in the year 1899. I also received notice of 22 cases of lead poisoning, one of which proved fatal.

Inquests. Of the coroner's inquests touching the above fatalities 42 were attended either by myself or by one of my colleagues, Mr. T. O. Edwards and Mr. J. Lloyd-Edwards. I also attended four inquests touching fatalities which I found did not come within the Acts. Ten inquests were held of which I did not receive notice from the coroners; three of the fatalities proved to be cases not reportable to my department; and the remaining 13 inquests it was not found possible to attend owing to leave of absence and other causes.

Touching the death due to lead poisoning no inquest was held. It was reported from one of the spelter works in the neighbourhood of Swansea, and I interviewed the Coroner respecting the expediency of ordering an inquiry; but, in the exercise of his discretion, he deemed it unnecessary to take such a course.

Shunting, &c. Twelve fatal, and 101 non-fatal accidents were caused by shunting, coupling or other causes connected with locomotive engines or other railway plant in use within the boundaries of the large metal works of the district. Having regard to the dangerous nature of this work, carried on as it is during day and night, and in all kinds of weather, the number of accidents, though not large, might be considerably reduced were all the men engaged at the various occupations to exercise more caution, and to discontinue the many customs and practices which are resorted to with a view to expedite th work, but which also add, very materially, to risk attending this class of employment.

Oiling. The practice of cleaning and oiling machinery while in motion is answerable for 30 accidents, all non fatal. In this connection I would mention that many firms have been added during the year to the list of those who have caused printed notices to be affixed throughout their respective works, prohibiting this dangerous, and in most instances, unnecessary risk. As I dealt very fully with the foregoing causes of accidents in my report for the year 1899, I will not enter into further detail regarding them in these remarks. The 27 non-fatal accidents caused by lathes were mostly due to the milling tool on the article in the lathe catching in *Lathes.* some part of the operative's clothing. It is very rarely indeed that any dangerous part of lathe gearing is left unguarded, save when belts are being re-adjusted or the speed changed, and during either of these operations the machine should be at stand-still.

Workshop accidents. In workshops wherein men only are employed seven reportable accidents happened, two of which proved fatal. Five non-fatal occurrences call for no remarks, being very trivial in their nature, and due to such common causes as the slipping of a chisel or the mis-carrying of a hammer. The fatal accidents were caused, one through a fall from a painter's loft, and the other through the moving of trucks in a scrap iron yard or depôt. In view of the former occurrence, the occupier, at my request, improved the means of access to the loft in question by the provision of a hand-railed flight of stairs and landing; and this accident leads one to remark that the means of getting in and out of many men's workshops situated on floors above ground are highly dangerous, and call for the exercise of no small amount of gymnastic agility on the part of the workmen employed thereat, and the Inspector, whose lot it is occasionally to effect an entry, sometimes by night up an unsteady ladder minus its full compliment of rungs.

As the cases due to lead poisoning will most probably be fully dealt with by H.M. Medical Inspector, I will do no more here than state that they were nearly all reported from the various spelter smelting works near Swansea, and the only white lead works in my district, situated at Burry Port.

Mr. Arnold (*Worcester*) writes encouragingly as to accidents, but has to deplore the continued occurrence of stamping press mishaps. This class of injury has for years been a matter of great solicitude to H.M. Inspectors, and they have spared no efforts to secure its diminution.

Saws. There is not much difference in the numbers reported, though I am glad to say those caused by circular saws shew a marked decrease. On the other hand, I am sorry to say those caused *Power presses.* by power presses shew a marked increase, which is only partially accounted for by the slightly increased number of firms using power presses now in this district. I am glad, however, to say that the two large employers here seem to fully realise the danger there is in working

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these machines, and have gone to very considerable expense in providing guards for them. It was thought at first that the presence of the guards would diminish the output, but experience has proved this is not so. The workpeople, however, do not seem to like them, and of the last 12 or 13 accidents reported, 10 or 11 have been cases in which the workman has put his hand round to the back of the press (which was properly fenced) and so got caught. Many of the machines, too, I am glad to say, are having the treadles taken off and a hand-lever substituted; for hand and hand, I feel sure, work more simultaneously together than foot and hand. An invention has, however, latterly been made by the foreman at Messrs. Williamson's which will make an accident at any machine to which it is fixed absolutely impossible.

Lifts. In connexion with these there is a danger to which I would draw attention, and that is that the ropes by which the hoist is moved are frequently placed too far in, thereby making it almost necessary for anyone wishing to stop or start the machine to lean over or forward so much that the head, and possibly part of the body also, is over the well. This remark applies especially, of course, to hoists used for goods only.

Mr. Pearson (*Lincoln*) reports on fatal accidents, some of which are described below. He also mentions the general adoption of saw-guards:—

Rolls. The first occurred on March 23rd, at the Frodingham Steel Company's Works.—Deceased was employed at the rolling mills, and was caught in the couplings of the rolls whilst leaning over to turn the water off. The firm had supplied a guard, which was, however, so heavy that, requiring constant removal, it was often not replaced, and on this occasion had been left off for more than a week. A guard has now been fixed which does not require to be removed when the rolls are changed.

Lift. May 8th, William Shakespeare, Trent Iron Works, Frodingham.—C. Scott, 25 years, was placing a barrow of ore on cage of hoist when it was started too soon, and he was caught between the cage and side of hoist. A signal bell is placed at bottom, but the men have neglected its use for some time, and a misunderstanding on the part of the engineman with the signal given was the cause of the accident. Instructions have since been posted in works that the bell must always be used.

Boiler cleaning. August 18th, Messrs. Hornby and Sons, Grantham.—The deceased, J. Harrison, 51 years, was cleaning out the boiler of a travelling crane in foundry, and had placed two planks across girders for that purpose. Whilst standing on one of the planks he fell a distance of 17 feet. A similar crane in same foundry is provided with a fixed platform for cleaning purposes, and manager promised to have one fixed on this.

Oiling. September 25th, Messrs. Hagerup, Doughty & Co., Ice Factory, Grimsby.—The deceased, J. Moore, 45 years, was apparently mounting the platform of a Paxman engine by the aid of a guard placed round flywheel, for the purpose of oiling, and placing one foot on platform, slipped over guard into flywheel. The guard was 4 feet high round flywheel, except at end of platform, where it was only 14 inches higher than platform. The defect has since been remedied.

Crane platform. October 26th, Messrs. Ruston and Proctor, Engineers, Lincoln.—The deceased, G. Braimber, 21 years, was cleaning a travelling crane and apparently fell off the end of platform, a distance of 18 feet. The platform was guarded all round except at one end, which had been left open for the convenience of placing a ladder when oiling wheels at end. The guard has since been extended and an intermediate rail placed.

There is nothing calling for special attention in any of the above cases, except, perhaps, that at Frodingham Steel Company's Works.

Totals. In addition to the above fatal cases, a total of 473 accidents were reported during the year, 201 of which were reportable to the certifying surgeons.

Saws. During the year there were 31 accidents, which, considering the number of sawmills and circular saws in use, I do not consider excessive. I investigated each and found that in most cases the guards were on at the time of accident. Nearly all the saws are fitted with guards of various degrees of efficiency, but I often find them either entirely removed or in such a position as to be of no practical benefit; and on pointing this out to the occupier, the invariable reply is, "We have been at a great expense in supplying guards, but the men will not use them."

Grindstones. There were eight accidents reported caused by fingers being caught between grindstone and rest; in three of these cases automatic rests were provided at time of accident, which probably had an effect on the amount of injury. In the other cases I recommended automatic rests, but several of the men say they are more dangerous than being without. Several of the large engineering firms pay special attention to keeping the edge of the stone true and close up to the rest, which doubtless is of great importance in preventing accidents when grinding tools.

Mr. Sedgwick (*Leicester*) gives satisfactory accounts of the means adopted, at his suggestion, for minimising the danger of working at the sole-moulding machines:—

That the makers of machinery do not, at times, even attempt to induce the purchasers to have efficient fencing attached to the machine is certain. Only recently I saw a machine which was about to be erected having dangerous exposed toothed spur and pinion wheels at the side without any guard. I called attention to this omission, and was informed that the makers of the machine had said, "There is no guard required to these wheels." It is often remarked by a manufacturer, when I have instructed the efficient fencing of some machine, "I should have thought that all such fencing ought to have been attached by the makers before

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being sent out. I should rather have it done as a part of the machine before fixing than have to do it now." The makers of the machine allege, in many cases, that if the increased cost of fencing were quoted, then the order would be placed with some other maker who did not so quote.

Power presses. A number of accidents resulting from these dangerous machines continues to be reported, but those from causes other than the action of the presses have greatly decreased, as a consequence of the greater care and attention given by the operator. The total number of accidents by power presses, in 1899, was 131, in 1900, 91, being a decrease of 40 during the latter year.

Since my last report an arrangement has been devised by which the "sole-moulding" machine, one of the most dangerous in use in the shoe trade, has been made comparatively safe to the operator. With the old machine the operator put the press in motion by the use of a foot-lever; this left both hands free, and led to interference with the moulds, crushed fingers and hands being the result. A succession of serious accidents led me again to try, by some alteration of the lever, to avoid the loss of fingers, etc., by the operator. I sought the aid of the manager of a large shoe machinery works, and suggested that a method of working the press by means of the employment of both hands should be attempted. He readily grasped the idea, and in a few days I saw a "sole-moulder" to which two hand-levers had been attached as suggested. With these levers both hands must be used at the same time, and no movement of the machine can take place unless both hands are so occupied. I tested the machine, with the result that I am satisfied that no accident can befall the hands of the operator if the machine be in proper working order. The advantages of these hand-levers are:—(1) They can be attached to nearly every existing machine; (2) they ensure safety to the hands of the operator; (3) they will increase the output, for previously the operator, knowing the danger of the machine, allowed his attention to be divided between the protection of his hands and his work. Being now assured of the safety of his hands, his undivided attention will be applied to his occupation.

Lifts. Many accidents still arise from the use of hoists, which are coming more into use day by day, few new factories being erected without them. The dangers are increased where the hoist is intended for the general use of several tenants.

In view of the accidents which have come under my notice, I am of opinion that no hoist should be allowed to be used unless having automatic safe-guards, and an efficient method of communication with each floor upon which the hoist cage is intended to be used. Chains, iron rods or wood rails across the entrance to the hoist-shaft, are, it appears to me, a crude, unsatisfactory evasion of the responsibility of occupiers. Frequently the hoist entrances are to be seen with doors wide open, or the chain, rod, or wood rail out of place. Upon enquiry the explanation given is that the person who used the hoist last has neglected to close the doors, etc. In one case a child eight years of age mistook the hoist door for the ordinary exit door, and fell down the shaft on to the top of the cage, a distance of 12 feet. Fortunately, no bones were broken, but the poor little fellow was badly bruised and shaken, and death might have resulted. This was a new hoist in a new building. Had it been examined by someone having power to insist upon having automatic guards, such as uplifting doors, gates, etc., this accident could not have taken place.

Cleaning in motion. Many accidents caused solely by the workers persisting in cleaning the dangerous parts of machinery whilst in motion have been reported, notwithstanding that in many factories stringent rules are posted prohibiting the practice. This is the more noticeable, in the hosiery trade, with females. They are mostly paid by the piece, and because certain parts of the knitting frames are more easily and readily cleaned whilst the machine is running, cleaning is continually taking place. Proper times for cleaning are allowed, and in many factories I have induced the occupiers to affix in prominent places copies of the following notice:—

NOTICE.

All persons are strictly prohibited from cleaning, oiling, or interfering with the gearing, wheels, belts, straps, or bands, whilst the machinery is in motion.

Should any part of the fencing of the machinery become defective or removed from its proper place, information of the same should be given to the manager of the room at once.

By Order.

18

Mr. Rogers (*Derby*) devotes some space to this subject and gives an interesting account of accidents in a blast furnace, referring to the "tuyères" mentioned in Mr. Jackson's report under "Dangerous Trades":—

Totals. During the past year 1,752 accidents were registered, including 17 fatal cases. I append special reports on some of these accidents, others are remarked upon under the heading of machinery, fencing, &c.

Locomotives. Twenty-four accidents were reported to me last year through the working of locomotives and other railway vehicles, including power trolleys running on rails in factory premises. Four of these terminated fatally. These four were caused as follows:—

No. 1 occurred when uncoupling partly dismantled engines (without tenders) which were in the works yard for repairs. Ordinary methods of coupling cannot be applied.

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No. 2 occurred through an engine bumping some waggons behind which a man was working; this was due to careless organisation of the work.

No. 3 occurred through a man, who had been on duty 23 hours, apparently slipping on an uneven and cinder-strewn track laid in a gully, the sides of which were only 27 ins. to 30 ins. from the outer rails.

No. 4 occurred through a locomotive crane being overturned by taking wrong points, which had apparently slipped open, and one wheel mounted the rails. The points ("three throw") were not provided with any lever shifting arrangement, but were pulled over by hand or crowbar, and not scotched or held in position in any way. Of the 20 non-fatal accidents, several were attributable to defective lock-out, and only two were caused by contact with objects nearer than three feet from the rails. The recommendations of the Dangerous Trades Committee have been brought before the occupiers, who have been specially urged to maintain a clear pathway on each side of the rails, and to keep fature lines at least three feet away from fixed structures. There are many lines in this district running in places less than three feet from buildings. Attempts will be made to set them back whenever repairs are being done.

Blast furnaces.

In April last an accident occurred at one of the largest blast furnaces in this district, and caused the deaths of two men and serious injury to four others. The six men were engaged in renewing an old "tuyère" blast pipe in a furnace, and when they had nearly finished the operation, the new pipe and its loose connections gave way, allowing the escape of several tons of burning fuel and partly burnt ore, which almost completely covered the deceased men, who happened to be just in front of the opening.

Tuyères.

The following description of the process will be necessary. The blast is conveyed to the furnace through a series of three pipes, the last of which (nearest the furnace) being called the "tuyère." This is a tapered tube of wrought iron, about 2 feet long. It has an inside diameter (at the furnace end) of 5 inches, which increases to 8 inches at the outer end. Into the latter end another tapered tube, called the globe pipe, fits, and this, in its turn, is connected, by a ball and socket joint, with the fixed blast pipe leading from the engines. There are 10 of these series of blast pipes round the furnace, at equal distances apart. As they are subjected to tremendous heat the "tuyères" have to be frequently replaced, and it was, as stated above, during the replacing of one of them that the accident occurred. The method of doing this is as follows. The blast is turned entirely off the furnace, and the old "tuyère" and globe pipe removed. The aperture left in the furnace wall (14 inches by 16 inches) is completely closed by putting in large quantities of clay. Immediately this is done, the blast through the other pipes (nine in the case in point) which have not been disturbed is turned on the furnace again. The new "tuyère" is now inserted into the centre of the clay, which, however, is not pierced; then the globe pipe is fitted into the outer end of the "tuyère," and is rammed forward until its free elbow end is opposite the mouth of the fixed blast pipe, on which it is then joined and afterwards fastened by hooks and bolts. The clay is now pierced by the insertion of a long rod at the endof the globe pipe, and the completed blast turned on through the new "tuyère." The operation is called "tuyèring."

At the time of the accident the men duly fixed the "tuyère" into the clay, and were engaged in ramming the globe pipe into the former, when the clay barrier collapsed, and the two pipes were thrown a distance of three or four feet, and followed by a stream of burning fuel and ore from the furnace. The men did not notice any unusual sound prior to the collapse, which was not accompanied by an explosion. They aver that the clay was properly fixed and was not pierced, and that everything was done in the usual manner. If this be correct, the most probable explanation of the occurrence is that a bridge or arch, without fuel below, was formed in the furnace (a most unusual occurrence), and its collapse produced a strain beyond the resisting power of the unsupported clay filling the aperture. The clay, if properly fixed, was apparently sufficient to resist the ordinary pressure produced by the blast from the other nine "tuyères," which, as explained, were in full action while the new "tuyère" was being fitted. It appears a dangerous practice to turn on the blast at all before the work of fixing a new pipe is finished and the connection properly fastened. The practice has, however, I am assured, been followed for many years in this and many other blast furnaces without known accidents, except slight burns caused by small spurts of fire through the clay being accidentally pierced. But these leakages have been so small that they could be easily made up by the addition of more clay. There have been no such accidents reported here since the constitution of the Derby district. A quarter of an hour's work of the furnace is saved by restarting the blast before the new pipe connections are fastened.

The occupiers have agreed to always complete the fixing of the new "tuyères" and connections before re-starting the blast in future. Verdicts of "accidental deaths" were returned at the inquests.

Fencing.

The branch of our work that has absorbed the most time during last year is the duty of enforcing the regulations on the subject of safeguarding machinery and consequent prevention of accidents. Most of the factories in the district have been carefully inspected to see that these regulations were complied with, and those not inspected have been noted for visits as early as possible during 1901. Where defects have been found verbal instructions and explanations have been given, and in all except the most unimportant cases the visit has been followed by a letter or circular on the subject. As some indication of the work done under this heading, I would point out that during the year over 1,000 letters and circulars respecting the protection of machinery have been sent out. I append special reports on points of interest.

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Lifts.

During the past year there have been fourteen accidents (one fatal) from cage hoists or lifts, and most of them would have been prevented by the exercise of obvious precautions on the part of the occupier, though only two or three cases could be indirectly traced to want of "fencing," which is all the acts require. Many of the accidents were due to the indiscriminate use of hoists by workmen generally, and others were caused by irregularities in the "well" sides. The surfaces of the "well" sides should be made smooth and the ledges fitted with plates or boards sloping away from the upward passage of the cage. The adoption of these safeguards has been urged upon occupiers with some degree of success; as also has the recommendation that one definite person only should be allowed to work the hoist.

Manual cranes.

No fewer than twenty-three accidents were reported last year through cog-wheels of manual cranes, nearly all of which occurred in blast furnaces and foundries. There is no reason whatever why these cogs should not be covered, and the only objection is the cost of the strips of iron plate and the time necessary to fix them over the teeth. I have had difficulty in persuading some occupiers of large factories, many of whom have hundreds of these cranes, to cover the cogs, but the valuable influence of the Workmen's Compensation Act is gradually making these employers agree that it will be cheapest in the long run to cover these wheels.

There have also been nine accidents through the handles of manual cranes, some of them caused by the weight being lifted running down, through the operator losing control of the handle, which then dashes round and frequently strikes him. These cranes should be fitted with a ratchet and pawl or an equivalent attachment, which would prevent the motion being accidentally reversed. Many occupiers are adopting these arrangements. Several accidents have occurred which have shown the necessity of a periodical examination and testing of cranes and their connections, and many large occupiers have instituted this valuable safeguard.

Set-screws.

Several accidents, including one fatal case, have occurred during the year through contact with set-screws and bolts projecting from shafts, pulleys, and belts, usually by clothing being caught. Where projections on permanent revolving parts have been noticed, the counter-sinking or otherwise covering has been urged, or the filing of the projection level with the adjacent parts; then, in the case of set-screws, the head has to be nicked for a screw-driver. A few accidents have been caused by the bolts of belt-fasteners. Where these have been noted careful lacing or the substitution of the "button-head" type of fastener, on which there is very little projection, has been recommended. The best and safest fastener for leather belts known to me is that made by the American wire lacing machine, which rapidly fixes a series of wire loops in each of the two ends of the belt to be joined. The loops are then brought together and intersected, and a wire coupling pin or piece of cord is put through. The safety of the arrangement is obvious, as there is no projection whatever, and its great advantages in the saving of time will doubtless cause the system to be adopted in many factories when it gets better known. The machines are imported and sold by a firm whose descriptive circular is enclosed.

Belt fasteners.

The task of dealing with projections on existing machinery is a most difficult one, and will apparently be a very gradual process. In many factories there are hundreds, in some, thousands, of such projections—set-screws, cutters, bolts—all of which are potentially dangerous, as our accident records show. The safeguarding of the more exposed set-screws has been definitely required, and some occupiers have promised to gradually remove or cover all such projections. Unfortunately new machinery is still being erected with bolts and set-screws protruding from revolving parts. Doubtless, however, the recent Home Office circular on this subject to engineers will have a good effect.

Saws.

The fencing of circular saws has been found to be neglected in many cases, but as there is no difficulty in fixing to almost every saw a guard of some utility, which can be used for almost all kinds of work, definite instructions to fence have been issued. Most of the workmen still object to use the guards, or rather, they state they would prefer to work without, but as they get accustomed to them their objection will probably disappear. This has proved the case with other guards, which have been strongly opposed by the workers on their introduction. During the past year 24 accidents were caused by circular saws, including one fatal case to the occupier of a small sawmill, who had been personally instructed by me to guard his saw a few months before. He neglected to do so, and a piece of timber catching the top of the saw was carried back and dashed against him—an accident that any proper guard would have prevented.

Emery wheels.

Two accidents (one fatal) have been reported during the year through the breaking of emery wheels. Neither wheel was fenced. The necessity of fixing strong hoods over all wheels, where this was practicable, has been urged upon manufacturers, and many notices have been served.

Chaff cutters.

There is much evidence of improvement in these dangerous machines since the Chaff Cutting Machines Act, 1897, came in force, though the police in this county do not appear to have exercised their powers under the Statute. The makers of machines are pushing the sale of guards, and are very effectively drawing the attention of users to the Act's penal clause. In the works coming within my inspection the excellent regulations of the Act have been explained and instructions issued when necessary.

Grindstones.

Four accidents have been reported during 1900 through fingers getting between fixed grindstone rests and the stones. Very few grindstones have been found with the safety moveable rest, and occupiers have been requested to alter their dangerous fixed rests to the moveable form. Care has to be taken to keep the usual types of safety rests clean and oiled at the joints, or they soon get stiff and practically "fixed." The rest which stands quite loose in V-shaped end supports is not open to this objection.

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The very useful suggestions of the Cotton Accidents Committee have been brought to the notice of manufacturers affected in this district, and extra guards are being fitted in many factories. The progress will be carefully watched during next year. In a few large weaving factories very unsafe shuttle guards, consisting of a thin single bar extending over but a part of the reed space and supported only at the ends, have been noticed. Large numbers of these bars were bent and afforded very little protection. They are now being taken off and replaced by stronger guards, properly supported, which cover as much of the shuttle's path as possible. *Cotton machinery.*

Mr. Jackson (*Walsall*) presents details of interest and analyses his subject with considerable care:—

During the year I received notice of 1,561 accidents, of which 45 (or 2·88 per cent.) were not reportable; of those reportable 1,504 (or 99·21 per cent.) occurred in factories, and 12 (or 0·79 per cent. in workshops. *Totals.*

The number of accidents reported by the certifying surgeons was 630 (or 41·5 per cent. of those reportable to me). This is an increase of 18·25 per cent. compared with last year, which I account for as being due to the improved supervision which the present arrangements of the certifying surgeons' reports coming through the local offices gives to the district Inspector.

I have received reports of 20 fatal accidents (19 in factories and one in a workshop), also of six cases of lead poisoning, but no cases of arsenical poisoning, mercurial poisoning or anthrax have been reported.

An investigation and report has been made in each of the 20 fatal accidents, in each of the six cases of lead poisoning, and also in the case of 96 other accidents. *Investigation.*

Each inquest of which I have received notice from the coroner has been attended.

Of the 20 fatal accidents of which I have received notice only five were caused by machinery; one at least of these was a doubtful case of suicide. The man went to a "drop-stamp" and either slipped or put his head under the descending stamp; he did not work at this machine and had no business near to it. In another case a man was moving a large belt from one side of a revolving pulley to the other, when his clothing was caught by the projecting set-screws on the collars on the shaft and he was carried round it, his head striking a wall and causing instantaneous death. A very remarkable accident caused another death: A fly-wheel 8 ft. in diameter, on an engine driving a pair of large shears in an iron mill, burst while the men were at work; one of the men was struck by a large piece of it and instantly killed; there were a number of men about at the time, and it is wonderful that no one else was hurt by the flying pieces. The history of the wheel was traced and it was shown to have been at work for several years, but after the accident it could be clearly seen that there were only two good arms out of the six, the other four were all either badly "blown" or "burnt." The wonder is that it ran for so many years without bursting, the probable cause of it doing so now being due to the wheels of the "governors" having broken a day or two before, and the engine working without any "governors" ran away, and was unable to stand the sudden check when the next piece of steel was put into the shears to be cut. A fourth fatal accident was caused by a man getting entangled in the winding chain (which draws up the incline wagons) in a brickworks. A fifth by a youth of 19 going inside the (excellent) fencing of some mill gearing to oil it, while the engine was at work; his clothing was caught by a projecting "key" on the upright shaft. *Fatalities. Set-screws. Burst fly-wheel. Chain. Oiling.*

Three other fatal accidents call for special notice. In May last two men were engaged filling a grinding mill with sesqui-sulphide of phosphorus when an explosion took place; both were injured, and one of them subsequently died. In investigating these cases I had the assistance of Dr. Legge (H.M. Medical Inspector). The theory that the explosion was due to the presence of some lower or less stable compound of phosphorus and sulphur was strongly denied by the management of the works, who attributed it to the presence of sulphuretted hydrogen or phosphorated hydrogen gas in the mill being fired by a spark when the men were charging it. The compound is ground under water and the mill is a closed one (similar to those used in North Staffordshire for grinding fritted lead). Its use has since the explosion been discontinued, and only open mills, which allow any gas that may be formed to escape, are now used. *Chemical explosion.*

In November a man who was engaged throwing scrap iron into a vat containing hot liquid fell off the overhead platform on which he was standing into the vat. He was so badly scalded that he died. The works are under the Special Rules for Chemical Works, the platform from which he fell was not fenced; it was 7 ft. above another platform which ran round the vat; there was a good fence between the lower platform and the vat. The question of a breach of the Special Rules was raised at the inquest, when the firm advanced a decidedly novel defence, viz., that the unfenced platform was not "over the vat," but over the lower platform, which (although it—the lower platform—was over the vat) projected about a foot beyond the upper one. Mr. Redgrave accompanied me on my visit to the works and also attended the inquest. *Unfenced gangway.*

The fatal accident reported from a workshop occurred to a youth of 16, who was engaged getting sand from a pit not 20 feet deep. This is a small sand pit on a common, where anyone can get sand at so much per load. The boy was really a carter's boy, and quite inexperienced in his work. He tunnelled under, and the "top" fell upon him; he was dead when got out. The case is worthy of note, as showing how much greater care is now exercised by H.M. Coroners in giving us notice of fatal accidents. Although within the definition, this is not an ordinary workshop; the case was not reported by either the occupier of the common, or by the boy's employer, and had it not been for the notice received of the inquest, I should not have heard of it. *Fall of earth.*

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Below I have classified the fatal accidents as to (1) Industry, and (2) Cause :—

Classification of Fatal Accidents.

Industry.	Number of Accidents.	Cause.	Number of Accidents.
Iron mills	4	Machinery in motion	5
Brick works	2	Fall of person	3
Chemical works	5	Weight fell on to injured person	3
Corn mills	2	Lifting tackle	3
Bridge and girder works	1	Fell into a vat	2
Electrical engineering works ...	1	Explosion	1
Spring balance works	1	Internal injury from throwing a heavy weight.	1
Nut and bolt works	1	Burns	1
Construction works (S. 23/95) ...	2	Found drowned in works "dock"	1
Quarry (workshops)	1		
Total	20	Total	20

Grindstones and emery-wheels.

No fatal accident due to a grindstone or emery-wheel, either with or without fracture, has been reported to me; but one non-fatal accident due to the breaking of an emery-wheel, and 10 "without fracture" from grindstones and emery-wheels have been reported.

The emery-wheel which broke was 18 inches in diameter, 1½ inches broad, and had a 4-inch hole. It was hung with plates on a Saturday, and burst at 11 a.m. on the Tuesday following. It had only worked for 15 hours and had only been "tried" for a few minutes. There were no instructions as to speed issued by the vendors of this wheel, it was running at 1,660 revolutions per minute when it broke, whereas other wheels this firm had purchased from different makers were guaranteed for only 1,250 revolutions for this size. I advised the firm to insist upon a guarantee as to speed being given with every wheel purchased.

As there are about 200 grindstones of over 18 inches diameter used for grinding (as distinct from those used only for sharpening tools) in this district, the absence of any serious accident from this cause cannot be considered as other than satisfactory.

Saws.

No fatal accident, but 23 non-fatal accidents from circular saws, have been reported; of these, 18 occurred at saws used for sawing wood, and five at saws used for iron and steel.

Investigation was made into 15 of the 18 accidents from "wood" saws. These investigations showed that one accident was caused by a "grooving" saw—I know no way in which these can be fenced,—eight were caused by saws more or less efficiently guarded, and six were from saws quite unfenced. With reference to the latter, two cases were approved for prosecution, and in both cases a conviction and penalty obtained. Referring to those accidents which occurred on saws which had guards, three of these happened when sawing "round" timber, four of them on saws where the guards were not adjusted or adjustable to the different sizes of timber sawn, and only one upon a saw where a really efficient guard was in use.

In 1899 two firms making "treenails" for railway sleepers reported 18 accidents; this last year only five accident notices have been received. One of the firms have had their saws guarded all the year, the other were prosecuted early in the year for neglect to fence their saws, and have since fenced them.

Aerated water works.

Only one accident due to the bursting of an aërated water bottle has been reported to me. This was caused by a bottle bursting after it had been filled and put into the case; the bottle flew up and inflicted a severe wound in the left arm of the man who was "filling." He was wearing a woollen gauntlet at the time, but from the appearance of the wound and the hole in the gauntlet I am afraid it must have had a hole in it before the accident.

Lathes.

Of the 43 accidents reported from these machines four call for remark. Two were caused by lathe change-wheels; in one case the guard had been removed and lost, the other I am unable to explain, the wheels were fenced, and the youth (he did not work at the lathe) must have been playing with the wheels and put his hand inside the guard. The other two accidents were due to projecting set-screws on the lathe chucks (and both happened in the same works—a nut and bolt factory). If there is one point more than another where makers of machinery are to blame, it is in selling lathes and drilling machines with projecting set screws —there is absolutely no reason or excuse for it, and the danger therefrom is only too well known to every member of the staff.

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Of the 27 reports received of non-fatal accidents from power presses, six were from brick and tile works, and two of these accidents happened on presses fitted with an automatic feed, and another on a press provided with a hand starter. The other 21 were made up as follows :— *Power presses.*

Kind of Press.		Industry.	
Hydraulic moulding press	1	Nut and bolt works	7
Cutting-off press	1	Ammunition works	6
Treenail compressing machines ...	1	Foundry	2
Power punches	4	Hollow-ware works	2
Other power presses	14	Buckle works	2
		Spring-balance works	1
		Treenail works	1
Total	21	Total	21

About a year ago the manufacturers of "treenails" in this district were urged to employ older boys on the compressing machines which they use, and it is pleasing to find that while four accidents were reported during 1899, only one has been reported in 1900.

As far as possible each accident from a power press is investigated (a special visit and report has been made in 14 out of the 27) and manufacturers have been urged to fix guards where practicable, but the kinds and uses of these machines are so varied that a general rule is impossible, and each case must be considered on its merits.

One slight accident due to electric shock (120 volts) has been reported, but calls for no special remark. *Electric shock.*

The alterations in the boundaries of the district have considerably reduced the number of accidents reported to me from users of locomotives in works. Only two have been reported, one was due to old wagons being used, these were fitted with admittedly defective couplings which necessitated the shunter going between the wagons to couple or uncouple them. After this accident I was assured that all such wagons would be overhauled and good couplings provided, which could be manipulated with the sticks with which the shunters are provided. In the other case the shunter slipped on a stone while getting off a moving locomotive to attend to the points. Both the cases were slight, but each might have been a serious accident. *Locomotives.*

The only weaving carried on in this district is tape weaving and hand-loom weaving, and no accidents due to shuttles flying have been reported. *Shuttles.*

From this class of machinery three fatal and 34 non-fatal accidents have been reported. In the first fatal case (at a construction works) a heavy steel shell was being hoisted into position by means of a pair of blocks, when a link in the "lashing chain" broke (owing to a defective weld) and the shell fell upon a man. The history of this chain was not satisfactory; its age, maker's name, or date when it had been annealed, were alike unknown; it appears to have been sent up and down the country with other tackle to any work the firm had on hand. The second fatal case was due to some men using some pulley blocks (which had been fixed to do some other work) to move a heavy casting; the blocks were fastened to a cross beam resting upon two roof principals, and as they fixed the rope to the casting in a line with the cross beam this was drawn off its bearings and fell upon one of the men. At the inquest the jury censured the firm, a censure with which I cannot agree, as it was admitted that these men had no business to have touched these blocks, and did so contrary to printed works rules. The third case, that of a man who was killed when assisting to remove some old "economiser" pipes, is really not reportable under the Act, as the works where it occurred were closed and were being dismantled. They were using a two-pole derrick with pulley blocks attached, when the derrick fell (what caused this was not clearly brought out at the inquest) and caused a range of pipes, weighing about three tons, to fall on one of the men. *Lifting tackle.*

A point worthy of note is that each of the fatal accidents, and 26 out of the 34 non-fatal accidents, reported were due to hand cranes or tackle where no "power" was used.

Under this head the following have been noted :— *Other machinery.*

(*a.*) Accidents caused by shears, chiefly in iron mills 29
(*b.*) Accidents due to flashes from the rolls or steam hammers in iron mills, or from spilling of molten metal in foundries 115
(*c.*) Accidents caused by wood planing and moulding machines 8
(*d.*) Accidents caused by iron planing machines 5

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Oiling, &c. The practice of oiling shafting in motion and of putting belts on to revolving pulleys has also caused a number of accidents; in three cases remarkable escapes from death occurred, the injured persons being taken round the shaft.

Set-screws. One fatal accident, already referred to, and a large number of minor accidents were caused by the often condemned projecting set-screws on collars of shafting and the chucks of drilling machines, for in spite of all that has been done in this matter there still remain a large number of these pins to be dealt with, and some people will do nothing until they are compelled by law to do it.

Fencing. Two convictions, obtained during the year, for neglect to guard circular saws have helped considerably in convincing users of these dangerous machines that the law requires guards to be provided and used, and guards are now fitted to the majority of saws in use.

It is too soon yet to be able to judge what the result will be of the action taken during the year in approaching machine makers with reference to the efficient guarding of machinery before it is sold; but I have already seen some recently purchased lathes with the cogs of the back gear fenced *when they were bought.*

In my visits to machine makers with reference to this matter I met with universal courtesy, and all expressed their desire, so long as the rule was binding upon all alike, to turn out their machines properly guarded; but all made the same remark, viz., that if it were not compulsory they would be undersold by makers who sold their machines unguarded.

Mr. Parkes (*Nottingham*) supplies some notes of the incidence of injuries in his new district:—

Totals. I am glad to be able to report that the staple trades of the county of Notts have been carried on during the year without any loss of life or loss of any limb. 600 accidents were reported in the whole county, of these, 10 were fatal, caused chiefly by falls and shunting operations, one by entanglement in machinery, and one by a fall of timber from a crane.

No female child has been injured, and but four male children slightly injured. Accidents to females considering the very large number employed have been fortunately few and of a minor character. Two women only were injured in lace factories, and 42 in cotton mills, hosiery factories, and the making-up trades.

No woman or female young person has been killed in any factory or workshop in the county.

Fencing. I am glad to say that the makers of machinery are paying more attention to the proper safeguarding of machinery of various kinds before sending the machines to the users.

It is very noticeable that American and German machinery is far better protected and has a much neater appearance when thus guarded than most English machinery of a similar type. The defect lies in the fact that engineers in this country have considered the extra cost in the design and execution of guards as of more importance than the prevention of accidents, so have left the cost and fixing of such guards to the user, leaving much to be desired by way of appearance and security.

Mr. T. O. Edwards (*Cardiff*), notwithstanding a severe illness, has been able to devote attention to the numerous cases coming under his notice:—

Fatalities. During the year I attended fifteen inquests, two of which are of interest as they could have been avoided if precautions had been taken. In one case a man was suffocated in an empty beer vat, which he had entered for the purpose of cleaning; had he previously lowered a naked light he would have discovered the presence of gas. In the other case a man was crushed through a defective link giving way. Close inspections of fractured parts prior to this and other inquests have proved to me that if cranes and lifting tackle were periodically (say biennially) examined and tested, many of the defects would have been discovered and accidents prevented. In many of the large works, docks, and Government yards, periodical tests are made, and a record of the same kept, so that if such examinations were made compulsory, it would only mean bringing all up to a standard which at present exists.

Beer bottling. In one beer bottling stores in this district where the average number of persons employed in all processes is 25, there were 18 accidents caused by the breaking of bottles during the year, seven of which were caused by the necks of bottles bursting during the act of putting in the screw-stopper. Gloves are provided for this work, but in the absence of Special Rules the wearing of them cannot be enforced.

Boiler making. At one time accidents in this trade were far more frequent than at present, injuries to the face and eyes being the rule, but there has been a considerable reduction of them, brought about by the custom of the holder holding a mop between the striker and rivet, thereby preventing splinters from flying.

Engineering. There were 62 reportable accidents in one works in this district last year, of which only three were caused by machinery, whilst only one of those, caused by a circular saw, could have been prevented by a guard.

Chaff-cutter. The Cardiff chief constable prosecuted one man during the last year for neglecting to safeguard the knives of his chaff-cutter. The guarding of the knives has been carried out in this district for some years, and has not been the means of contention. It is otherwise with

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regard to guarding feed boxes. There are two patent arrangements of rollers on the market which are satisfactory, but firms that have no such arrangements contend that a reversing bar placed across the feed box suffices. I refused to accept such as satisfactory, because if the bar is placed low enough to prevent the hands being caught by the rollers it enables the man to feed over it, which is what has been done in such cases.

The following report of inquest *re* death of Jeremiah O'Brien, at the Cardiff Town Hall, is interesting, owing to the recommendation in regard to safety hooks, figured below :—

The deceased was a labourer in the employ of Messrs. Guest, Keen & Co., Limited, and met with an accident whilst unloading iron ore from the s.s. "Pomeron," the injuries from which caused his death at the infirmary. The deceased, who was one of a gang of five men, was working in the hold filling tubs, by means of which the ship was being discharged, when an empty tub in being lowered knocked against the coamings, slipped off the hook, fell into the hold and crushed the deceased, who died at the infirmary at 1.30 a.m., the accident having taken place about 11.30 p.m.

A man known as a "bearer off" is attached to each unloading gang, whose duty consists of instructing the crane driver when to lower, and also to clear the tub of the coamings; this undoubtedly could be best done if the "bearer off" stood on the main deck, but at the time of the accident he was on the between deck, where it is usual to stand during wet weather, there being no definite position indicated for him.

After a lengthy enquiry the jury brought in a verdict of "accidental death," with the following riders :—(a) "That the bearer off should at times remain on the main deck whilst at work"; (b) "That the jury urge the immediate provision of safety hook such as the one illustrated by His Majesty's Inspector of Factories."

The handle of the tub measured 2¼ inch in diameter, and the hook in use was 5 inches deep and 2¾ inch wide at the opening. I elicited from the witnesses that tubs did occasionally come off the hook, and that a safety hook would be of great advantage, and give a sense of security to those at work.

I attach a rough sketch of the safety hook, which is provisionally protected by a Cardiff builder, and also of a hook which I have also seen in use. I also enclose a tracing which shows the process of unloading.

Mr. Hilditch (*North Wales*) sends particulars of several fatal accidents, some of which are given herewith; and he has been busy with brick and pipe press guards, drawings of which accompany this report :—

Totals. The number of accidents reported during the year is 358, eight of which were fatal. I have no figures available for comparison with previous years, this being the first occasion in which a separate record has been kept. I attended five inquests on the fatalities, and H.M. Inspector, Mr. Walmsley, attended one during my leave. The other two were not reported by coroners, neither were the occupiers' reports received in time.

Fatalities. The following remarks apply to the fatalities :—

Effect of a (1.) This occurred at a chemical works. A plumber's apprentice had climbed to one of the sulphuric acid chambers to repair a leak in the lead sheeting. Instead of using a ladder to reach the stage which had been erected for carrying on the repairs, he tried to reach it by climbing up the sides; when crossing to the stage over a trough used to carry the lead piping from the chambers, the bracket supporting the trough gave way, the boy falling to the floor, a distance of 15 feet. I find that these brackets are sometimes used by plumbers to erect their stages on. In this particular case, I found that the bracket itself was quite rotten, and the rails that once fastened same were practically eaten away by the action of the acid.

I pointed out the necessity of a thorough examination of such supports before being used to support staging.

Overhead crane. (2.) This was a case where a young man (18), employed as a crane driver, was crushed to death between crane and a pillar projecting from side of building. The crane was of the overhead travelling type, electrically driven. It appears that when the crane was being moved down the shed it suddenly stopped. Deceased got out of the car to seek the cause, and got on to the rail in order to reach the wires. It was surmised that contact had been broken between the slipper and wire, the connection having being found broken. Deceased had apparently made contact, and suddenly the crane moved forward, crushing him against the pillar. Unfortunately, the man had not switched off the main current on leaving the car, and directly contact was made the crane continued its journey. In this case, I recommended that a card of simple instructions be posted in each car, stating what steps were to be taken by driver in the event of the failure of current. I further suggested that means be taken to prevent a similar occurrence by an arrangement which would automatically cut off the main switch by the action of the driver leaving or entering the car. I am pleased to say this suggestion was acted upon and proved quite successful. The attendant cannot enter or leave the car now without opening a door which cuts off the current from main switch. The door is kept in position by a quadrant guide bar and cannot close accidentally. I am recommending this in all cases where similar cranes are used.

Coupling. (3.) This occurred at a brick works. Deceased boy was engaged in drawing up loaded wagons from an incline connecting works siding with railway line. A wire rope was used for this

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work, which was carried around sheaves on to a winding drum driven by steam. The lad's duty was to hitch off the rope when the wagons reached the level, and allow them to run down a slight incline to railway siding. In this instance the wagon was allowed to go beyond the sheave before the lad detached the hook. He endeavoured to do so after the wagon had passed the sheave; the wire being drawn along with the wagon pulled the coupling upwards, crushing the lad's head against the wagon end. The suggestion made here was that the wagons should in all cases come to a dead stand before any attempt was made to detach the rope.

Slings. (4.) This occurred at a canal wharf. Deceased was loading timber into his barge, and when guiding a log which was suspended by a crane, it appears the log slipped through the dogs and fell on deceased, pinning his neck to edge of barge. It was said that the dogs had been fastened on a loose knot in the timber. I suggested to the canal company that small sling-chains be provided on each wharf to be used when awkward or unsound logs were being loaded. This the company promised to carry out. This inquest was not reported by coroner.

Manholes. (5.) This occurred at an iron works. Deceased was working on the night shift and fell into a gas flue, the manholes of which had been left open in order to cool the flue for cleaning.

Mr. Walmsley attended this inquest.

At my last visit I found all the manholes securely fenced.

Chaff-cutter. (6.) This fatality was the result of an accident at a chaff-cutting machine used at a mineral water works. The man's hand was caught in the feed rollers, and before the machine was stopped or reversed, his arm was also drawn in and gradually chopped off right up to the elbow. The machine was fitted with a hand reversing lever placed at the side of feeding box, but not crossing same, as in some of the modern contrivances. The man died a few days after the accident. From the evidence given at the inquest, it appears that the man's arm was not extricated from the machine for fully thirty minutes after he was caught. The two men who were there at the time had apparently lost all presence of mind, as no attempt appears to have been made to reverse the machine by hand. If this were done promptly, the remaining portion of the man's arm might have been released in a few seconds, and his life probably saved. A new machine has now been substituted, fitted with modern improvements for guarding the feeding mouth. There are a great many of these machines driven by power in the district, which are outside the scope of our administration. There is practically nothing done to give effect to the Chaff Cutting Machines Act, 1898. Anglesey appears to be the only county where a police notice was issued.

I append a supplementary list of classified accidents. There are few of these that need any special reference. Two of the five cog-wheel accidents were due to want of fencing.

Saws, &c, Six of the seven accidents at circular saws occurred at the front or cutting part of saw. No guards for front of saw in any case. The other accident occurred when sawyer was adjusting the saw. As he was feeling the running of the saw, he moved his hand towards the back part, the friction of the saw carried his hand upwards and on to the teeth. A guard was fixed to the bench, but was turned aside for changing saw. All the accidents occurred at mills where British timber is dealt with chiefly.

The accidents at wood planing machines were due to the men not using the guards provided.

Lathes. The accidents at lathes and other machine tools were caused by the hand getting between driver and rest, or between work and tool.

Lifts. Two of these accidents were caused by the feet being caught between ascending hoist and floor. At H.M. Superintending-Inspector's Mr. Redgrave's suggestion, bevelled plates were fitted around the framing of hoist hole on each floor.

The other accident was at a flour mill. The hoist door had been carelessly left open, and a man stepped backwards into well.

Brick presses. Nine of the ten brick press accidents could have been avoided if the presses were fitted with guards. The tenth was due to the fracture of the plunger rod, which dropped on the boy's hand as he was taking off the brick.

Belts. The accidents due to belting were:—(1) Putting strap on pulley; (2) Blow from strap slipping off; (3) Caught by mule belt (mule was started while boy was cleaning); (4) Caught by lathe belt against gearing guard.

Gas, escape of. One rather curious accident was reported under this head. A stonemason was cutting out a hole in the bottom part of a stone tank used for storing hydrochloric acid, when, through a spark from the chisel, an explosion occurred, burning the man severely. This was, probably, due to some free hydrogen remaining in the tank after the acid had been removed; air entered through the hole which had just been made, forming an explosive mixture with the hydrogen which was collected in the upper part of tank.

In another accident from escape of gas, two men were badly burnt, through an explosion of carbolic acid vapour. Two men were about to start cleaning out the vertical tubes through which the carbolic acid passes from stills to condensers. These tubes are fitted on the inside with projecting plates for intercepting the dust which ascends with the vapour; the dust has to be cleaned off periodically. In order to light the interior of tube the men lowered a lighted candle which fired the vapour. The men should have run water through the tube before commencing work, in order to clear all vapour and gases.

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One accident—which might have been fatal—was caused by the bursting of a pulley on a willey; one of the pieces just grazing the man's head in its flight. This came about through the belt driving feeding pulley slipping off. The pulley then took up the motion from the cylinder through an increasing speed gear of about 20 to 1, thus increasing the velocity of pulley to about 1,500 to 2,000 revolutions per minute. *Burst pulley.*

Classification of Accidents.

Fatal.		Non-Fatal.	
Causation.	No.	Causation.	No.
Falls	2	Circular saws	7
Electrically driven crane	1	Wood moulding and planing machines	3
Blow from capstan hook	1	Cog wheels	5
Caught by hauling rope and railway wagon	1	Machine tools, other than lathes ...	5
Fall of timber from crane	1	Hoists	3
Fall into gas flue (blast furnaces)...	1	Linotype machine	1
Chaff cutting machine	1	Shears...	3
		Winch handles	2
		Molten metal	7
		Rollers of wringer (laundry) ...	1
		Belting	4
		Escape of gas...	6
		Bursting of aërated water bottle ...	1
		Shafting	3
		Calenders (paper mill)	2
		Breakage of slings and chains ...	1
		Hand trapped in grabs of steam navvy	1
		Brick presses...	10
		Other causes	267

Taking the fencing of machinery, &c., generally, I may say that it is fairly satisfactory. *Fencing.*

In some of the larger works—especially iron and steel works—the difficulty is to have the fencing kept in position. It is seldom one visits these places without finding some important part of the fencing put on one side, the invariable excuse being that it has just been removed for repairs, &c., and not replaced. Judging sometimes by the appearance of the guards, it would suggest that they have not been in their proper position for months.

I am pleased to say that those dangerous places in brick works, viz., the feeding holes above grinding rolls, are now all as securely fenced as possible—consistent with the carrying on of the work—and on the whole well maintained.

Reference has been made in some of my previous reports to the number of accidents in this district from brick presses. Much of my time has been taken up during the year in visiting the works where steam presses are used, in order to assist occupiers to get some efficient guard for these machines. In the early part of the year I designed a simple form of automatic guard, and handed sketches of same to all the firms interested. One of the firms took up the idea, and fitted their presses with the guard in a few weeks after the details had been explained. It gave every satisfaction, proving to be no hindrance to the workers, or placing any restriction on the output. The principle of the guard may be briefly described as follows:—The guard is simply a sheet iron or wire work frame, sliding on a pair of inclined guides, the object of the inclination being to bring the top of guard down level with the surface of brick box on to the *Brick presses.*

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upward stroke of plunger when the lad takes off the newly pressed brick. The guard remains here for a slight interval while another brick is put in. When the descending plunger is about half way down to the box, the guard begins to move forward and upward. Owing to the movement of the guard being much faster than plunger (viz., about 3 to 1), it closes around the descending plunger when the latter is within 3 inches of the box, and remains there during the critical period, when the plunger is entering the box. If the lad chanced to have his hand on or near the box on the down stroke, the guard by its horizontal movement would push the hand off, without harming it. Owing to the presses being rather close to each other in some works, a modified form of the above has been fitted. It is actuated in the same manner, but having a vertical motion only. Where presses are provided with an automatic feeding arm, I have had a fixed wire work guard fitted around the plunger, with a space at each end, sufficient only to allow the brick to pass in and out.

It has been a difficult task to move occupiers in the matter, but I am pleased to say that local prejudice against any contrivance whereby these machines may be fed automatically, or fitted with a guard, is being gradually overcome.

I hope to report shortly that every steam press in the district is either fitted with some automatic guard, or fitted with some contrivance which will allow of a fixed guard around the plunger.

Saws. Nearly all circular saws in the district are now fitted with some kind of guard. The guard most favoured in mills where rough timber is converted, is one made by a local firm; it consists simply of an easily adjusted riving knife. Some of the useful features of the guard are: (1.) easily adjustable in line with saw. (2.) safety from being drawn backwards on to teeth of saw when the timber pinches, and is temporarily drawn back by sawyer. This is accomplished by cutting out small recesses in the bench wherein the adjusting screw is sunk. The recesses are cut out along the bench to suit the different size saws in use: (3.) easily moved by simply swinging the riving knife upwards when any awkward piece of timber deeper than the cutting depth of saw is manipulated: (4.) no spanners, &c., necessary for adjusting, or when changing saws.

Some of the many guards on the market is in use at other mills.

Pipe presses. These machines are now guarded throughout the district. This guard consists simply of a sheet iron hopper fitted around the plunger. The guard is usually made about 9 inches deep. As well as being a good guard, it serves the purpose of keeping the clay compactly together, instead of being scattered about at each stroke of the plunger.

Mr. Clark (*Wolverhampton*) notes some points:—

Fencing. In the case of punching and shearing machines and power presses I have observed that while the teeth of the cog wheels are, as a rule, well fenced, there is a tendency on the part of some occupiers to leave the sides of the large cog wheels unfenced. I consider that it is equally necessary to fence the sides of these wheels owing to the closeness with which the spokes run to the frame or body of the machines, which forms a dangerous trap, likely to cause serious injury to any person coming in contact with that particular part of the machine.

The "back gear" wheels of lathes are not generally fenced, so far as I have observed, but I have experienced no difficulty in getting this done wherever such unfenced gear comes under my observation. I hope the time is not far distant when the makers of lathes and other machinery will fence all the gear wheels, &c., before despatching from their works.

Set screws. I have recently seen new drilling machines with dangerously projecting spindle set screws, in which condition they had been received from the makers, and it has been necessary for the users to do what the makers might have done had it been stipulated at the time of ordering the machines, viz., to "countersink" the screws. In many cases, where there has not been sufficient diameter of spindle to "countersink," it has been necessary to shrink a "collar" on to the spindle of sufficient thickness to contain the head of the set screw—a very simple manner of overcoming the difficulty.

Gas engines. In my opinion there is room for improvement in the fencing of a good many gas engines that have come under my notice. In some cases the fencing has been of too scanty a nature, or else placed in such a position as not to efficiently guard the moving parts of the engine. I like to see the flywheels, crank, shaft, &c., fenced closely round with wire-work, or other suitable strong material, so that an attendant can get all round his engine without going *inside* the fence. I urge occupiers to fence on this principle wherever possible. A single bar placed across the engine room is sometimes the only fence, and inside which the attendant will probably move freely about, at great risk of being caught.

I am glad to notice a disposition to provide gas engines with self-starting appliances, and I look forward to the time when all gas engines will be self-starting, a state of things that would greatly simplify the question of fencing.

Mr. Wolfe (*Birmingham*) reviews much of the work which passes through his hands with great care:—

Fatalities. Of the fatal accidents, the number caused by falls is very striking, and those caused by machinery very small. I speak here only of those I have investigated. Two fatal acccidents

Burst stones. were due to the bursting of stones, one an emery wheel, the other a grindstone. It is a

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significant fact that the gas engines driving them were in both cases not in good working order. In the case of the emery wheel, the variations in the revolution of the gas engine caused variations of speeding of the emery wheel up to as much as 150 revolutions a minute. In that of the grindstone, the engine was under repair when I investigated it, and so I could not judge as to the variations in speed.

Fall of earth.

One peculiar fatal accident was due to the falling of earth while digging the foundation of a building. The height of the clay front being dug was about 8 feet, and this had been undermined, as is usual, to the depth of about a foot. A man was sent to the top of the clay to look for signs of cracks, when suddenly the whole face collapsed, falling on one man and breaking his neck. The whole business seemed to have been done in the right way, but the sudden collapse was due to a pocket of sand behind the face of the clay. This pocket was quite invisible from face and top of clay, and had got saturated with water from a previous heavy downfall of rain, and the extra weight of water caused the clay to give way just as the undermining ceased.

Explosion.

Another death was due to the bursting of a blow-off pipe. It was elicited at the inquest that this blow-off pipe had not been thoroughly examined for nearly 16 months, and it was very much corroded on the under side. This leads one to wish that all boilers were insured, and inspected thoroughly and regularly by competent boiler inspectors.

Lifting tackle.

In one case a misconception as to the holding capacity of a rope sling caused the death of a man who was responsible for its use. A casting of part of a weighing machine had to be moved a few feet by a hand crane. The casting weighed 8 cwt., and inside was a quadrant operating on a relieving lever. The foreman in charge had the choice of several slings, but used a piece of tarred rope which was barely capable of supporting 1 cwt. The casting was raised 6 inches and then the sling broke, the casting falling with quadrant underneath. The quadrant immediately shot up into the casting, forcing the relieving lever sideways. This struck deceased, smashing his skull in.

Oiling.

The last fatal accident I shall comment on shows the utter indifference of men to danger. The engineer of a works wished to oil the bearings of a shaft which was over 12 feet from the ground. Usually while doing this he stopped the engine, but on the present occasion he did not, but went up a ladder, placed a plank between two beams, and stood on the plank while he oiled the bearings. In his left hand he held some cotton waste, and he placed this hand on the revolving shaft, which caught the waste, causing it to wrap round his wrist and pulled him on to the shaft where he sustained shocking injuries which terminated fatally.

Clothing.

Among non-fatal accidents I might point out that my attention in 1900 has been drawn to the frequency of accidents due to girls wearing their hair loose, to women wearing loose shawls, and to men and women wearing loose sleeves near belts and moving machinery. Notwithstanding cautions, I find women especially will not give up puffy sleeves, preferring evidently to be in the "fashion" of factory modes of dressing rather than be less fashionable and less likely to incur danger. Where men or women wear aprons I always advise that the means of fastening shall be as slight as possible, so that should necessity arise they can be torn off instantly.

Two years ago a youth was burned to death owing to his inability to tear off his apron which had accidentally caught fire.

Disconnecting gear.

The necessity for instantaneous stopping of machinery is very urgent. Grinding hulls in tenement factories have to be provided with such means, but why those more than others? Every room in a tenement factory should be fitted with a fast and loose pulley to the main driving power, or have instantaneous communication with the engine house. The introduction of motors will probably tend much to lessen the number of accidents, as each machine or set of machines will be driven by a separate motor and long shafts, and heavy belts will be things of the past.

Fencing.

Steady progress towards a higher ideal in this respect is to be recorded this year, and thanks to the greater requirements of the insurance companies, backed up by the directions of the Inspectors, an approach to finality may be looked for, especially in the case of the larger occupiers.

In a district like this, embracing so many different and distinct manufactures, there are always to be found numbers of small occupiers, and the widespread use nowadays of gas engines and motors tends to increase this number. It is among these small occupiers that the chief trouble in the matter of fencing arises. I do not wish in any way to disparage these small occupiers, for I think they tend much to keep up the individualism which is so often the forerunner of many great improvements in manufacture. But this I do say, that small occupiers do not consider the necessity of safe-guarding machinery as do the larger firms. This is due, I think, to two causes: firstly, that because the number of workpeople they employ is small, an idea takes possession of them that they will be free from accidents; and secondly, so much of their capital is taken up in buying the machinery to start the factory that the money expended in safeguards cannot be afforded. Hence they either do not fence or they erect fences which are no use at all.

How often one sees a gas engine with the only safeguard a bar waist-high about six inches or a foot from the side of the flywheel.

A slight push or a stumble would send a man's head or arms through the spokes of the revolving wheel.

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In the case of other dangerous parts of machines the fencing is of no strength, and would be liable to break under any pressure. Often, too, it is clumsily erected, and if necessity arrives for its removal it is rarely replaced.

Were these machines only sent out guarded efficiently, much future trouble and annoyance would be saved, and freedom from accidents obtained, while the extra initial cost would be a small percentage on the first price of the machine.

The Home Office circular will, I hope, induce manufacturers to do a great deal in this way.

Power presses.

The accidents caused by power presses still continue fairly numerous, and the distressing part of the affair is that in many cases the accidents are serious. Much has been and is being done by the employers to lessen the dangers, and we have now many presses most efficiently guarded, and a few cases where employers were given the option of granting extra compensation or of being prosecuted under section 82 of the 1878 Act, have opened their eyes considerably to the necessity of preventing future accidents.

Two cases which came under my notice illustrate the great carelessness of the workpeople. In one case a guard was placed to prevent the use of the left hand, and a hand lever was attached to be worked by the right hand after placing metal on the die. In working, the woman lost part of the index finger of her right hand. She gave as an excuse that she fainted and her right hand must have fallen under the press. I pointed out to her that the machine could only be set going by this same right hand, and she was evidently confused. I found out then that she could reach the lever by passing her left hand underneath her right arm, and this she had done, and kept feeding the machine with her right hand. To work a little faster she had done this with the result as stated.

In the other case the guard and lever were precisely as in the first case, but here the negligence was even worse, for the woman had tied her foot by a piece of rope to the hand lever and was keeping the machine constantly going and feeding it with her freed right hand.

I dare say a good number of accidents stated to be due to the power press "repeating" itself would resolve themselves into accidents due to some such careless and wicked devices as those mentioned. But I do not think sufficient trouble has been taken to make power pressess less dangerous by causing the feeding of them to be automatic. In many button, umbrella, and ammunition works this is often done, and I am sure it could be carried out on a much larger scale.

When the blanks to be stamped are flat an inclined plane with guides would be practically sufficient.

Where the blanks are already partly shaped the lower bed might be made circular and work on a central pivot.

This bed could contain, say, six or eight countersunk holes sufficiently narrow at the bottom to just prevent the blank falling through.

The operator could then feed the blank into the hole in front of her, which would in its turn be carried automatically under the press.

Saws.

The use of guards in this part of the district is now almost universal, and if only a really capable guard at a reasonable price could be found, I think there would not be the slightest hesitation on the part of any one to affix same; but, undoubtedly, price is a large factor in the business of guarding, and so a cheap and inefficient guard secures certain orders which should go to better ones. Constantly, however, one has to caution the workers for removing and not replacing the guards, and this indifference on the part of the men naturally leads employers to think we are imposing on them when we insist that these guards shall be provided and kept in use.

At one of the largest railway carriage works here the whole of the saws, large and small, have been guarded, and investigations led to the statement from all the workers that they would not be without the guards under any circumstances.

Metal saws lend themselves more easily to means of guarding, and few are not guarded now.

The chief source of accidents seems to be due to the following up of the work with the hand, and no guard that I have yet seen would prevent these accidents. Most of the other accidents are due to not making proper use of the fast and loose pulleys attached to the saw. For instance, when removing guard to sharpen the saw, or when replacing it afterwards, due care is not always exercised to see that the saw is motionless, and a chance touch causes a nasty accident.

A few accidents have also been caused by the belt not being pushed well home on to the loose pulley, and the jarring of the belt has caused it to slip back again on to the fast pulley thus causing the saw to rotate with disastrous results.

Lathes.

The improvement in the fencing of lathes is very conspicuous, and if only guards could be fixed which are not easily removable many less accidents would occur. Some of the guards are most unwieldy, and, consequently, when removed, are liable to be left off. When makers fence their lathes before selling this difficulty will be done away with.

At Messrs. Tangyes the lathes are very well and very simply guarded. The great usefulness of these guards lies in the fact that they are easily moved for the purposes of changing the wheels, but are not able to be taken off the machine.

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Herewith I enclose print of a lathe which does away with change wheels altogether. By the movements of two handles 40 variations of feed can be provided, varying from four per inch to 300 per inch.

I enclose a photo of a lathe made by a local firm who send out their machines beautifully guarded. Unfortunately the guard of the large change wheels was not affixed, but in every other case where intaking cogs are likely or liable to cause accident, the fullest provision in the way of fencing has been made.

Platen machines.

The number of accidents recorded for 1900 is not, I think, large when one takes into consideration the number of platen machines in use in this district. Of those which I have investigated none could have been prevented by the use of a guard.

During 1900 I have been enabled to induce nearly 50 firms to try guards for these machines, and from the increasing number of guards on the market other Inspectors must be just as successful.

The prejudice against guards is very marked on the side of the men, and yet when once well tried I have heard men say that they would not be without them.

One firm, which had a succession of accidents, placed guards on their machines, and I was assured that since making use of the guards (now over three years) not a single accident has occurred.

Where youths are employed these guards are absolutely essential.

Cranes.

At the largest engineering works in this district all the cranes are regularly tested, and the date of test and capacity are painted conspicuously on each crane. At the same works chains are tested regularly, and all particulars are entered in a book. The larger ones used infrequently are tested once a year, and the smaller ones used oftener are tested twice yearly. Occasionally a link is taken out to undergo a separate test. Every link is carefully examined, and chains are always kept well oiled so that the bearing of each link may not wear.

Printed notices (as below) are everywhere affixed stating the capacity of each rope sling or chain, and this capacity is placed about 10 per cent. below Board of Trade requirements.

NOTICE.

All Persons using Slings must first see that they are in good order and that the following Loads are not exceeded under penalty of dismissal :—

Rope Slings.			Chain Slings.	
Circum. (about).	Diam.	Load.	Size.	Load.
1½ inch.	½ inch.	2 cwt.	$\frac{5}{16}$ inch.	5 cwt.
2¼ „	$\frac{3}{4}$ „	5 „	$\frac{5}{16}$ „	10 „
			$\frac{5}{16}$ „	15 „
3¼ „	1 „	10 „	$\frac{3}{8}$ „	1 ton.
4 „	1¼ „	15 „	$\frac{7}{16}$ „	1½ „
			½ „	2 „
4¾ „	1½ „	25 „	$\frac{9}{16}$ „	2½ „
			$\frac{5}{8}$ „	3 „
6¼ „	2 „	40 „	$\frac{11}{16}$ „	4 „
7 „	2¼ „	50 „	$\frac{3}{4}$ „	5 „
			$\frac{7}{8}$ „	6 „
7¾ „	2½ „	60 „		

Note.—Care must be taken (by using pieces of Timber or old Sacking) that the Slings are not damaged by sharp corners of Castings, &c.

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When lifting long articles, such as Vertical Boilers, Engine Beds, &c., where the Slings are long and are lashed close down, use slings for four times the load.

If two Slings are used, each must be fully capable of doing all the work.

BY ORDER.

July, 1893.

Every casting has its weight conspicuously painted on it, so that no excuse can be offered for using a chain which is not up to the required standard.

No chain is allowed in the works which is not capable of sustaining one ton.

Grindstones. Accidents from grindstones during 1900 numbered two, one of which was fatal. Both were caused by the bursting of the same stone. This was hung by plates and the flaw was quite hidden by the plates.

When I inquired into the accident I was astonished to find that the holding on pegs to which the horsing chains were attached were only driven into the oak sill some 4 inches. Hence, when the accident occurred, the "horse" was of no benefit to the worker, as it was thrown with him right across the room.

Regulations as to the fixing and fencing of grindstones should be more stringent. The size and substance of the sill might be specified, and orders issued that holding on bolts should go right through sill and be securely fastened beneath it. The strength of the horsing chains should be stipulated and periodical tests insisted on. The regulations now in force with respect to grindstones in tenement factories might be applied to grindstones in all factories.

Emery wheels. In this district, during 1900, emery wheels were the cause of 11 accidents, one of which proved fatal. The wheel which caused the death was 12 ins. in diameter and 2 ins. wide.

When ordered, the hole in the wheel was found to be too large for the spindle, so the makers roughened the inside of the hole to hold a lead bush. It was fastened by plates, 6 ins. in diameter. The nature of the work which it ground prevented the wheel being hooded. It had been in work for nine days and was run up to about 2,000 revolutions per minute, though the variations of the gas engine caused the revolutions to be anything up to 2,150 a minute. No guarantee as to the number of revolutions it could withstand had been given.

Two things might have led to the bursting of the wheel: (1) the roughening of the axle hole to make it hold the lead bush; and (2) the variations of speed.

At a works in this district, where many emery wheels are used, the heavier ones are hung with an indiarubber sheet between the plates and the wheels. The engineer says this is beneficial in two ways. First, the plates can be screwed up very tightly without injuring the wheel, and, secondly, the rubber lessens any shocks to which the wheel may be subjected.

In the same works, large thin emery wheels are hung with wooden plates to within half-an-inch of the edge of the wheel. As the wheels are worn down so the wooden plates are "turned" down correspondingly. Thus the wheels always have the maximum of support.

Mr. Evans (*Birmingham*) notes the two most dangerous machines in use:—

Fatalities. Of the three fatal accidents which I have investigated only one was caused by machinery in motion. The deceased, in this case, was in the act of clearing the sides of a clay mixer, and was (contrary to instructions) using for this purpose an iron bar, when the bar was caught by the knives and he was thrown into the trough. On the recommendation of the jury the striking gear has been altered so as to be close at hand to the man who works on the platform by the trough, and the sides of the mixer have been raised.

Power presses. Of accidents occurring at power presses, only two happened at machines to which hand levers were affixed. One of these was caused by the machine being out of working order, while in the other case, the girl had tied up the lever in such a manner as to make the action of the machine continuous. In every case—where the class of work permits it being fixed—I have strongly urged the affixing of a revolving table or some other means of mechanical feed; because the feeding is then done at a safe distance from the tool, and the temptation to straighten a disc which is not lying even in the die, which frequently causes mishaps, is obviated.

Platen machines. In accordance with instructions, I have asked that platen machines be provided with guards, and in most cases this has been done; the guards on the market now seem, on the whole, to be very efficient, though in many cases they are somewhat expensive, and this has proved a stumbling block to many of the small printing firms.

Saws. Circular saws are for the most part provided with guards, but still one frequently finds such guards laid aside, or else the riving knife in such a position as to lose the greater part of its value as a protection. When one urges that the riving knife, to do its work efficiently, must be fixed and kept in a proper manner, the sawyers at once concur, yet take, in many cases, no steps to insure this condition.

Mr. Brothers (*Birmingham*) describes the instances in which he has pointed out the requirements as to fencing:—

Fatalities. Out of the three fatal machinery accidents, the inquests on which I have attended, I note that two occurred in unreported factories, notification of the inquest being the first intimation of

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the existence of the factory. In one case the occupier of the factory, a sawmill, was himself the victim of his failure to comply with section 75, for the circular saw from which the strip of wood that killed him was thrown back was entirely unprotected. The foreman of the jury, himself the occupier of a sawmill, and, as usual, not particularly enamoured of circular saw guards, told me he regarded a riving knife as the one valuable feature of such a guard. Certainly it would have prevented this accident.

PROSECUTIONS AND PENAL COMPENSATION.

A large number of convictions have taken place in the Division during the year, testifying to the care and impartiality shown by the Inspectors in each district.

The "making or finishing of bricks" is providing a case of appeal, as it was decided at Nuneaton that in the matter of glazed bricks, the brick was practically "finished" before the glazing process.

A very important case under the Truck Acts will be found in Mr. Jackson's report herewith, to which he has been able to attach counsel's opinion on the result, which only exemplifies how much there is "to be said on both sides."

We have not dealt with any cases of penal compensation.

Mr. Jackson (*Wallsall*) has had a very important prosecutiom under the Truck Acts, as to which he quotes counsel's opinion taken by the Local Chambers of Commerce. He also mentions the following:—

Saws. This year I took the first prosecution for neglect to fence a circular saw. In delivering judgment the Magistrate (Stipendary) said:—

> In this case I have to consider first of all whether this circular saw ought to be fenced, and, secondly, whether injury to Harvey was caused by neglect to fence. I am certainly of the opinion that a circular saw is dangerous, and it is a difficult machine to fence, yet there appear to be many contrivances which would fence it very fairly and adequately. I do not say, or suggest, it was possible that if the machine had on any of these guards we are taking about, there might then no accident occur. Accidents do occur, and will occur, when you have such dangerous things as a circular saw to deal with, no matter how well you may try to guard it. You must trust to the skill of the man who is working it, and he may make a slip, or do other things which, in spite of a mechanical guard, may cause injury. I have no doubt, however, if any one of these guards were attached to a circular saw there would be very much less risk of injury than there is now. The object of having these guards is to diminish the risk of injury. It is somewhat difficult to say in this case, but it might possibly be, that if there had been one of these guards on, the man, Harvey, would not have had his thumb cut. This might possibly be so, but I am inclined to think it is exceedingly unlikely that it would have been if this particular guard had been on. I do not see why there should not have been a guard to go further towards the wood, and I do not see why that guard should not come down to at least a quarter of an inch off the top of the wood. If that had been done this accident would not have happened.

A penalty of £5 and cost was imposed.

Compensation. In August, a child of 13 lost his right hand in some unfenced cog-wheels on a brick machine. I had ordered these wheels to be covered. I was instructed to make inquiries if proceedings under Section 82 were desirable, but the firm upon learning of this agreed to pay the full amount of the penalty (£100) to the boy, as well as his lawyer's expenses (£7), and no proceedings were, therefore, taken.

Mr. Hilditch (*North Wales*) secured a conviction of great importance, affecting the fencing of brick presses:—

Brick press. The few prosecutions taken during the year call for no special comment, with, perhaps, one exception. This was a case for failing to fence a brick press whereby a boy lost his hand. The firm had been repeatedly instructed, and every assistance given to guard the presses, but nothing was done. The case was stubbornly contested, and much expert evidence brought in to shew that these machines could not be successfully guarded. After a lengthy hearing, I was able to convince the bench as to the possibility of guarding the machines without in any way interfering with the work; and the firm was convicted.

Mr. Brothers (*Birmingham*), and his colleagues, have been paying attention to the prohibition of meals in certain places:—

Brass foundry. The only one of interest was a prosecution under Section 39 of the 1878 Act. To check an apparently growing tendency to disregard the prohibition against permitting the taking of food in brass casting and polishing shops, Mr. Knyvett directed visits to be especially made to such

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places during the customary meal times, and it was not long before I found a boy in the act of eating his dinner, at 1.30 p.m., in a brass casting shop. The penalty imposed should have a salutary effect. I am paying especial attention to securing that Form 8 is affixed in all factories to which the notice applies.

TRUCK ACTS.

Beyond the case referred to under "Prosecutions" at Walsall, no new features of interest has arisen in respect to these involved enactments. Mr. Walmsley is, however, engaged on the subject in the potteries, having been in conference with the Masters' Associations as to the proper observance of the law, both as to charges made and their proper publication.

Mr. Jackson (*Walsall*) hopes for a diminution in deductions from wages :—

Deductions. Where deductions for "gas," &c., or for fines are general, notices are now affixed, and in the latter case registers of fines kept. The exceptionally busy year experienced in Walsall has resulted in many manufacturers giving up the practice of deducting for "shop room" and "gas," and it is not likely that once having been given up, these deductions will again be re-imposed.

GENERAL REMARKS.

Many subjects are dealt with in the following reports, special reference being made to local sanitary administration as far as it affects our duties.

We shall derive considerable assistance from the recent case of Tracey *v.* Pretty, Ipswich, which has established our right to require sanitary accommodation of a suitable and efficient character, in spite of the refusal of the Local Authorities to move in the matter.

Industrial developments of an interesting character are noted and described : among these will be found a report on the manufacture of artificial silk, and the classification of the processes carried on, by Mr. Brothers.

The application of the particulars clause to the pen trade has occupied some time and attention, the methods of stating and calculating wages being somewhat involved, but I am happy to say that we experienced no opposition from the manufacturers, who showed themselves quite willing to conform to the order. The satisfactory working of a new order or rule always takes time, and this is well understood by persons to whom the administration is entrusted.

Mr. Knyvett (*Birmingham*) refers to sanitation and the extension of the Particulars' Clause :—

Local sanitation. It has now been possible to carry out the inspection of workshops during the past year, for the first time since I have had this district, with a feeling of satisfaction that way has been made towards their improvement, both as regards cleanliness and as regards privy accommodation. The result of the new system is shown in the large number of notices of insanitary premises, sent during the year to the Local Authorities.

An unusual incident has occurred, quite at the close of the year, through the District Council of one of the country towns having removed the only privy from a large flour mill ; and, in terms used during their discussion on the subject, "left the miller and the Factory Inspector to settle it between them."* This case presents some features of possible future interest.

Ventilation. Viewing the approaching visit and enquiry of the Committee on ventilation, I do not propose to treat of that subject in this report. The existing situation seems to my mind unsatisfactory and to lack precision. It is difficult to procure evidence, or even an opinion of reasonable definitiveness, from any authority I have consulted, that the dust arising from metal polishing, which is the dust most often met with here, is seriously injurious, or sufficiently so to justify me in ordering the provision of a fan. In cases where fans have been provided, I so often find that the application has been unscientificially made. For these reasons I am much basing my hopes on the Committee, who will advise, when, and how, fans are to be ordered and applied.

* I have recently taken steps to alter the views of the Council as to their irresponsibility. J.A.R.

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Mr. Lewis (*Swansea*) deals with the new Education Acts and industrial conditions :—

Education.

The raising of the number of attendances to 350, in each of any five years, as a qualification for full-time employment in the case of a boy or girl between the ages of 13 and 14 years, will tend to reduce the available number of qualified children very materially in certain parts of the district. Bringing the qualifying standard of proficiency under this section into line with the bye-laws of local educational authorities is, doubtless, a step in the right direction, and will help to remove much misunderstanding, and not a little friction between manufacturers and parents on the one hand, and school authorities on the other. But, I understand that, in virtue of their powers under the Education Acts, some school boards have decided upon the drastic measure of fixing Standard VII. as the qualification for exemption from attendance, and also of declining to grant attendance certificates at all.

In the exercise of their powers they will thus succeed in keeping most of the children in school until they attain their fourteenth year, and make null and void the useful provision of Section 26, Act 1878, for children between 13 and 14, which is much valued by parents, and largely availed of by manufacturers ; in fact, in many parts of my district from 50 to 75 per cent. of the names in the full-time registers are those of children who, in the past, commenced to work soon after reaching 13 years of age, having qualified therefor by passing in Standard V. or making 250 attendances in each of five years during the period of their school life. When these bye-laws become better known in the districts affected, and steps are taken by the educational authorities to enforce them, it is more than likely that parents and employers will bring pressure to bear with a view to securing their modification, seeing that their immediate effect will be to seriously hamper some of the staple industries which are the maintenance of large industrial communities.

Trade.

In reviewing the trade of South Wales and Monmouthshire for the year 1900, one is faced by the fact that the unprecedented prosperity which, during a large part of the year, prevailed in the coal trade, has undoubtedly acted to the prejudice of some of the industries whose welfare much depend upon a regular supply of suitable fuel at steady prices. Still, abnormal prices and poor supplies of fuel notwithstanding, manufacturers have, on the whole, had a very satisfactory year's trading, and the toilers have shared in the prosperity. As the year closed, the situation became, from various causes, rather acute in a few of the staple industries of the district ; and at the time of writing the outlook is not very rosy. That there must be profit yet in these trades to the enterprising and up-to-date capitalist is evident, for, although one hears the croaking of the pessimist on the one hand, the optimist is still in the land, and as evidence of faith in the future of the district, we have new ventures being pioneered and large extensions promoted, in the form of fresh coal sinkings, expansions of already colossal works, the erection of modern steel and other smelting furnaces and rolling plant, and further developments by railway and dock owners and controllers to meet the increased demand for transport facilities. All this proves, beyond a doubt, that the men who have, in the past, helped to make the district, are fully alive to the possibilities of further growth, and mean to take full avail of the geographical and natural advantages possessed by the district in the combat for commercial and industrial supremacy.

Disputes.

The relations between capital and labour were marred, during the past year by more than one ugly tussle, and the railway strike of August last came near to blasting the fair promise of big returns with which the year opened ; however, with the close of the strike, the recuperative powers of the district were once more exemplified in the marvellously quick return to health and strength which followed this attack of partial paralysis.

Competition.

The chief complaint at the close of the year, comes from the steel manufacturers, who supply tinplate works with bars ; by some unaccountable economic twist, American made bars are being "dumped" down at Swansea, Cardiff and Newport at prices below Welsh makers' prime cost. There are not wanting far-seeing men of good repute, who prophesy that this importation of steel from the states has come to say, unless the Welsh makers and their workmen can, by combination and economy, produce at lower prices than have hitherto prevailed in this trade.

Amalgamation.

The chief event of the year in the way of trade changes has been the amalgamation of the interests of the Dowlais Iron Company, and the Patent Nut and Bolt Company, Limited, under the style of Gucot, Keen & Co., Ltd.

A new trade.

The Nickel Silver Works in course of erection in the Swansea Valley for the firm of Brunner, Mond & Co., are drawing towards completion, and the new process for the recovery of nickel from ore discovered by Dr. Mond and Dr. Langer will, it is considered, mark a distinct step onward in the scientific treatment of ores.

Nettlefolds, Limited, have secured land right on the coast for the still further development of their large steel and wire making works in Monmouthshire.

Cold storage.

The manufacture of ice and the erection of cold storage facilities are growing apace at the Welsh ports, and the district is fast becoming in these respects, not only self supporting, but is laying itself out to meet the demands of a large distributing centre.

Tin plate.

With the settlement of the present Chinese disturbance, tinplate manufacturers are sanguine in their expectations of a boom in the sheet-trade ; and it is more than probable that, as a result of this demand, many of the smaller mills now rolling tinplates will be substituted by plant suitable for the production of large size sheets.

Black plate.

The black sheet trade of the district is threatened, inasmuch as the German Government propose to increase the tariff on this class of imported steel, large quantities of which are exported from Swansea to Germany.

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Foreigners. Before closing my remarks under this heading, I would refer to the importation during the past year of a large number of Spanish workmen into certain of the iron and steel works of Glamorganshire, and of Italians into the collieries of the Rhondda Valley and the lead mines of Cardiganshire. This unique state of things is attributable to the great demand for labour during the time of industrial prosperity, which was aggravated by the depletion of the ranks of the soldiers of industry in answer to the call for militiamen, army reservists and volunteers. In this connection, mention should also be made of the migration of large numbers of North Wales quarrymen, who were out of work owing to the unfortunate differences at Penrhyn, to the collieries and kindred works of South Wales.

Mr. Arnold (*Worcester*) has no expansion of industries to record :—

During the past year I am glad to say that all the principal industries affecting this district have been very fully occupied, possibly in some cases, owing to the war in South Africa, but generally speaking owing to the national prosperity.

Industrial development. There has been no attempt to start any new trade, nor have I heard of any likely to be made ; two or three years ago an attempt was made to start a boot trade at Bromsgrove, but it has gradually dwindled away, and one factory now remains. Electric lighting is increasing, but only very slowly ; it is now complete at Hereford, and a company, I understand, has been formed at Ross. The two counties, Worcestershire and Herefordshire, may, however, be looked on as depending on agriculture rather than manufacture, and especially is this so in the case of Herefordshire. I believe farms have been remunerative, and certainly the average of hop yards is increasing. The china works I am glad to say are busier than they were in the previous year, and the two great railway signal makers have been and are exceptionally busy. Now the various districts have been altered, the principal industries in this one are, glove making, carpets, needles and fishing tackle, china, ordinary general printing, building, the enamelling of tin and iron ware, and the making and stamping of tin boxes. The two trades for which perhaps the two counties are most famous—sauce and cider—only give employment to very few hands.

Mr. Pearson (*Lincoln*) is not altogether satisfied with the sanitary conditions in some parts of his district.

Sanitation. The sanitary condition of some parts of the district is in a backward state, and in one factory I found 85 females employed with only one w.c. provided for their use. I wrote the firm requesting that two more be provided, and on revisiting shortly after found this had been complied with.

I have had conferences with some of the sanitary officials and generally speaking find them willing to co-operate with me.

Very few complaints have been received *re* excessive hours, but on receipt of one from a young person employed in a carpenter's workshop in the country district, I visited several, and found that young persons were employed from 6 a.m. to 4, 5 and 6 p.m. on Saturdays in nearly all classes of workshops, and in many cases from 6 a.m. to 7 p.m. during the week. I instructed the occupiers in all cases, but some strongly protested, and one of them stating that it was impossible to do without working the young persons after hours occasionally, giving as an instance the receiving an urgent order for a coffin. I pointed out that the Act does not interfere with the employment of men, and cautioned him against employing young persons after legal hours.

Mr. Sedgwick (*Leicester*) has taken opportunities of spreading the knowledge of factory requirements outside the ordinary routine of duty :—

Trade. The trades of the district have been fairly good during the past year. Hosiery manufacturers have especially benefited by the large orders placed by the War Office for knitted goods for the use of the army in South Africa.

Advice to students. On Friday, 5th October, 1900, I attended, upon invitation, the Boot and Shoe Class held in connection with the Leicester Municipal Technical and Art Schools, and gave an address to the students on "The Factory Acts as applying to Machinery used in the Shoe Trade." I directed my remarks to the machines in use in Leicester, their action and the dangerous parts connected therewith. Between 70 and 80 students were present. At the close of my address a number of questions relating to machinery, &c., were asked, to which I gave replies. I was pleased with the deep interest taken by the students in the subject under notice. This is the second time I have been favoured to address this class upon matters connected with the Factory and Workshop Acts.

Sanitation. I am pleased to be able to repeat my favourable report of last year, with reference to the action of the various local authorities in the district on matters coming under the heading of sanitation, &c. In Leicester the number of visits to workshops, including bakehouses, by the local sanitary officers, was 602 during the year 1900.

Mr. Ashworth (*Wolverhampton*) finds in his district considerable enterprise in the production of fuel and gas, and describes a new process of tube making :—

Industrial Development. At the moment of writing extreme depression is prevalent in the iron and steel trades, also in the manufacture of locks. To a very great extent this is due to the very high price of fuel, and is the reaction after two or three years of "boom." With a view to competing with coal, or

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trying to lessen the cost of production by utilising other substances for coal, two or three very interesting experiments are being tried in the immediate neighbourhood of Wolverhampton, which, if successful, must have far-reaching effects.

Utilisation of waste gases.

In the first place an attempt is about to be made to utilise waste furnace gases. For some time past the adaptation of the ordinary type of gas engine with the object of utilising waste gases from iron furnaces for driving purposes, has engaged the attention of the leading firms in the gas engine making industry. A powerful engine, to be driven by waste furnace gases, was shown in the recent Paris Exhibition, and now Messrs. Crossley Bros., Ltd., have completed another exceptionally large engine of this type. This engine has been built for a large firm of iron and steel manufacturers very close to Wolverhampton, and will be used as a blowing engine for the furnaces. To thus utilise the waste gases from the furnace larger cylinders than usual are required, but in most other respects the engine, apart from its exceptional size, is laid down on much the same lines as the ordinary large horse-power gas engines. The engine is of the double-cylinder type, and the gas cylinders are 31 ins. diameter with 36-in. stroke, and the air cylinders 63 ins. diameter. There are two fly-wheels, each 9 ft. diameter and 12 ins. wide, and the total weight of the engine is about 100 tons. So far the full capacity of the engine has not been accurately ascertained, but it is estimated that with furnace gas it will not be less than 500 horse-power, and with ordinary gas it would be capable of developing a much higher power.

Mond gas.

A large scheme is being promoted to manufacture and supply cheap fuel gas by this system in the Midlands, and it is expected to effect a revolution in the direction of motive power. Experimental plant has been put down at a number of works for driving by means of this cheap form of gas. Those consumers who take not less than 4,000,000 cubic feet per quarter are not to be charged more than 3*d.* per thousand feet, and others not more than 4*d.* Power to carry out the scheme is to be sought in the next session of Parliament, but is likely to be strongly opposed by the several Local Authorities affected, as it will attack the monopoly already enjoyed by these authorities in the manufacture of gas and electricity.

Fuel.

A plant has just been put down for the manufacture of a fuel which is considered to be a rival to steam coal. The high price of coal has encouraged a company, calling itself The Compressed Fuel Syndicate, to commence the manufacture of patent briquettes. These are made from fine slack or coal dust, and put through a patent process.

Electric traction.

A very large scheme is gradually being developed for covering practically the whole of the Midlands with a network of tram lines, electrically equipped, and several large generating stations are being erected to produce the electricity required for the traction. The wagon building works, where electrical cars are being manufactured, are extremely busy, and are working at high pressure to keep pace with the demand; and in connection with this, a new works of very large size has been erected near Wellington, Salop, for the manufacture of electric tram cars. About 700 workpeople are being employed at these works.

Tube making.

I also wish to call attention to a new method of making tubes by the Perrin process, works having been erected for this purpose at Wednesfield, near Wolverhampton. It is claimed that this invention will change the whole character of the manufacture of wrought iron, gas, water, and steam tubes, and will largely affect the manufacture of steel tubes also. Previously, in the manufacture of tubes, hollow shafting, telegraph poles, nuts, or any hollow bodies, the metal has been first manufactured solid, and then converted into the desired shape at an expenditure of wages, fuel, and loss of material. Briefly, Perrin's process, whilst manufacturing the metal, gives the desired shape, and completes the manufactured tubes at the same cost as the raw material, out of which manufacturers have previously made these articles. In making wrought iron tubes by the ordinary process five heats have been required—two to puddle the iron and make the metal strip, and three to make the tube from that strip. In the Perrin's process, two heats only are required to make the finished tube, the puddled bar being rolled straight into tube instead of strip. The whole of the costs of ordinary tube making, fuel, wages, and waste are saved. The process is as follows:—The puddled bar is made up in sets of four to produce a complete billet, this is then placed in the welding furnace. The hollow billet is taken from the furnace at a welding heat, passed through the welding rolls, and then transferred to the stretching rolls, resulting in the production of the finished tube with no heating but the heat necessary for passing through the welding rolls.

Mr. Rogers (*Derby*) devotes much attention to the sanitary conditions of his new district and the action of local authorities; he also sends interesting details of the employment of young persons in the lace trade, a subject now under consideration:—

Ventilation.

The subject of ventilation has received careful attention during the year and many improvements have been requested, but in the absence of specific regulations in the direction of fixing a standard, the present unsatisfactory conditions will, it is to be feared, remain a reproach to our factories and workshops.

Fixing of windows.

Most factory and workshop windows in this district are arranged to open, but the openings are almost invariably fixed so low that they cannot be utilized in winter. It is the greatest exception to find any ventilating means besides windows. New works are still being constructed in the same defective manner. In a few cases, however, architects have submitted to me plans of new factory buildings, in some instances under the mistaken belief that this course was required by statute. In these cases steps are being taken to provide reasonable means of ventilation. In existing factories fans and proper inlets have been suggested in large crowded workrooms, and in others "hopper" windows or Tobin's tubes to prevent

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Weaving sheds.

Lace works.

draughts, and cowls have been requested. I think the worst ventilated workrooms in the county are the large weaving sheds in the Glossop district, in which no artificial humidity is introduced. Some of these places, in which hundreds of persons are employed, are absolutely without ventilating means (except doors) in the winter, when the roof windows are closed. These places contrast very unfavourably with the so-called unhealthy steaming sheds, wherein a standard of air purity is now enforced. I have urged the provision of fans in these places, and instructed that either this must be done or other ventilating arrangements that can be utilized in cold weather adopted. The lace factories, most of which are in modern buildings, are also badly ventilated. Nothing but windows and doors are provided, and the windows are usually too low to be opened in winter. These factories work 20 hours or longer every day. The air at night is very offensive.

Dust extraction.

There are a great number of emery wheels used in the iron foundries and stove grate works in this district, and I have found one of these factories provided with a very good system of dust extraction. Two Sturtevant blowers exhaust from the hoods over each wheel, and blow the dust into settling chambers. The other occupiers I have visited have been requested to provide fans (or blowers) in connection with hoods strong enough to act as guards in the cases where the top of the wheel can be covered. In other cases, the fan has to be arranged differently; probably it is best then to exhaust the dust down an open mouth or hopper behind, and, if possible, under, the wheel. Much objection has been raised on the ground of cost, as in some works a separate fan has to be fitted to every pair of wheels, and occasionally to single wheels. One occupier recently complained that the fan and guard "would cost as much as the machine itself."

Emery wheels.

It is unfortunate that the makers of emery wheels and other grinding and polishing machines do not provide hoods and fans in connection with them, as do the makers of boot machinery. The difficulty, which does not occur in the latter case, is that emery wheels, &c., are frequently used for top as well as side and front grinding; but this difficulty could be overcome by making some wheels with covers, &c., and others without, but with a fan acting from the back as described above.

Inlets wanted.

Fans are usually to be found in the card rooms and gassing rooms of cotton factories, but in most of these places the fans have been of greatly diminished value through the absence of proper air inlets. In many of the rooms there were no inlets besides windows, which are closed every cold day, and openings were sometimes so fixed as to cause the air to pass straight to the fan without diffusing to the body of the room. In gassing rooms, I have frequently found one or two 24 in. fans working, and only 1 or 2 sq. ft. of inlet area, when that area should have been from 4 to 8 sq. ft. to ensure proper working of the fans. It has been somewhat difficult to persuade occupiers that fans cannot work efficiently unless they are allowed to draw an adequate supply of air into the rooms in which they act. For the usual open-blade fan with curved ends, inlets into the room should be provided of a total area about equal to the square of the fan's diameter.

Steam exhausts

The provision of fans has been suggested in several dye works and laundries to absorb steam. The only satisfactory method of dealing with free steam arising from vessels that cannot be closely hooded is to absorb it by drawing or blowing into the room warm dry air, with the addition, in the latter case, of extracting appliances or roof openings. Any attempt to exhaust by cowls or fans is bound to be ineffective in the cold weather, unless adequate means are provided for warming the air rushing in to replace that exhausted. Additional steam is obviously produced by the old methods of simple extraction, that introduce cold air from outside which cannot bear the same amount of moisture as the warmer air inside the room.

Sanitation.

Last year I sent full lists of the registered workshops to all the sanitary authorities in the district, and to many of them lists of factories were forwarded as well. Circulars of explanation were also forwarded, and requests made that registers should be set up and additions notified to me. I have had interviews with nearly all the clerks to the various Councils and with many of the medical officers of health. No notices of workshops, under Section 3 (3) of the 1891 Act have reached me, though I have notified the various authorities of 260 new workshops during the year, in addition to sending them particulars of the works at first on the registers.

So far as I have been able to ascertain, very little independent work under the Factory Acts appears to be done in this district by the sanitary authorities. In Derby Borough nothing has been done besides acting upon our references, and this has apparently been the case in many other parts of the county. There are signs of a change, however. The numerous references of sanitary and other defects (125 during the year), and the repeated interviews I have had with the local officials, seem to be taking effect, and several authorities are now setting up registers. I have conferred with Dr. Barwise, the county medical officer of health, upon this subject, and he has been good enough to bring the matter before the sanitary committee of the County Council, with the result that a formal circular of explanation and admonition was sent to each of the local Councils. I hope to be able to report next year that the regulations are being administered by these Councils. The medical officer of health for Derby Borough tells me he expects to get another sanitary inspector very shortly and then routine inspection will be commenced. The borough surveyor has recently undertaken to get all the large factories surveyed for fire escape purposes.

Local inspection.

The present haphazard system of inspection by reference is, I venture to suggest, most inefficient, and it is open to considerable doubt whether the transfer of sanitary responsibilities in workshops to the local authorities has saved the department much time, except in certain large towns, none of which are in my present district. In most places of which I have had experience, the only sanitary inspection done in workshops is done by us at our visits for other purposes, and as these "other purposes," if carried out properly, require all our time,

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sanitary matters, for which we are not directly responsible, have to take a subordinate place. As you are aware, we have also, in most districts, had to cause the enforcement of the important fire escape regulations of recent Acts, which have been utterly ignored by sanitary authorities until our references have reached them. It has been pointed out to me that the Local Government Board do not require the officials of sanitary authorities to report annually their action under the Factory Acts, though such reports are required on other subjects. At present our information on the point is most incomplete.

Lace works, special exception.

I would draw your attention to the unsatisfactory nature of the Special Exception under Section 44 of the 1878 Factory and Workshop Act, which applies only to lace factories. This Special Exception allows male young persons over 16 years of age to work nine actual hours any time between 4 a.m. and 10 p.m., the only restriction being that the boys must not be employed on the same day both before and after the ordinary "period of employment" in the factory, and if they are employed after that period at night they must not work before it next morning. It is, therefore, apparently legal to keep young persons of 16 in and about the factory every day from 6 a.m. to 10 p.m., or from 4 a.m. to 7 p.m., according as 6 to 6 or 7 to 7 is the "period of employment." Young persons of 16 and 17 are frequently found working after hours, and it is almost impossible to prove they have worked more than nine hours. Probably the daily allowance of actual work is not often exceeded, but, apart from the difficulty of administration, the great objection to the exception is that its provisions permit young persons to be kept on duty, though not actually working, for injuriously long hours—much longer than those of the men workers.

Lace machines usually run continuously from 4 a.m. to midnight, with only ¼-hour to ½-hour break about midday, and two sets of men are employed. The shifts in this county are usually 4 a.m. to 9 a.m., 9 to 1, 1 to 6, and 6 to 12. The two sets take the 1st and 3rd and 2nd and 4th shifts respectively, and sets are changed weekly. In some of the larger factories the 16 year old boys work in sets like the men, the first set finishing at 5 p.m. and the second at 10 p.m., to secure compliance with the terms of the Special Exception. Meals are taken, as best they can be, in the factory while the machines are working. The midday stoppage is for oiling, &c., and not for meals. Contrary to the practice in other textile trades, the actual lace making machines are tended by men only, who do not need assistance during ordinary work. One man attends each machine. The duty of the women and young persons is solely preparatory, *i.e.*, winding, &c., and finishing, nearly all of which can be done during ordinary hours. Very few children are employed. When the yarn in a machine is exhausted, a stoppage of about two hours takes place for the removal of the empty bobbins and the threading of new full ones into the moveable carriages of the machine. For most kinds of work this occurs about once a day. The threading is done by boys, and as the time of a machine's run cannot be exactly computed, it follows that some of this work has to be done at night, or the machine be stopped till morning in some cases. The necessity for this would be largely obviated by having duplicate "carriages," but the cost is so high (£130 to £160 per machine) that only very few firms have them. Many of the large factories work continuously night and day, and so are compelled to keep a staff of threaders over 18 years old. Most places have one or more of these youths.

There are comparatively few young persons working under the Special Exception in Derbyshire. The number is, I believe, about fifty, and they are employed in only twenty to thirty factories out of a registered total of 150 places. The work they do is undoubtedly boys' work, and different piece-work prices are paid for night work to the older youths. I am assured that a smart boy of 15, after two years' experience, can do threading as quickly and well as a man. No serious inconvenience would, in my opinion, be caused by altering the conditions of the exception in order to render possible some check on the actual hours worked. Probably, in addition to the existing restrictions, a provision allowing employment only in two specified shifts a day (neither to exceed five hours), with intervals between each shift, would meet the case.

Mr. Jackson (*Walsall*) refers to the amount of time devoted to War Office contractors' works and also to sanitation, and other points to which his attention has been directed :—

War Office contracts.

During the year 110 works have been engaged upon War Office Contracts for a long or short period; while so engaged, *monthly* visits have been paid to them, in accordance with your Circular Letter of February 22nd, 1900; at several of these works it was found that the limits allowed to them were been exceeded, and thus (as instructed by your Circular Letter of March 12th, 1900) *weekly* visits have been paid to them until the irregularities had ceased. In all 605 special visits were paid to these works.

Sanitation.

Notices of new workshops and of removals, have been received from the following Local Authorities :—Walsall, West Bromwich, and Handsworth. If complaints have been made to any of the Local Authorities, I have always found that steps have been taken to remedy what was complained of.

On 27th October, the Local Authorities at Walsall, informed me that there was a case of scarlet fever in a house where a tailor's workshop was situated. The workshop was promptly closed, and not allowed to be re-opened until after the patient had recovered, and the house thoroughly fumigated and disinfected.

Children.

I do not know of a single half-timer at work in this district.

No license for the employment of a child at a theatre, &c. has been received by me during the year.

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The raising of the number of attendances required for the exemption of a child of 13 from school will cause a marked change in this district. The general age for exemption now is 12; in West Bromwich it is 13, but is to be raised to 14, and then all the troublesome school certificates will be done away with. The uniform raising of the age for total exemption from school to 13 (so as to bring it in line with the age limit for employment under the Factory Acts) is greatly to be desired, as is also the simplification of the certificates of exemption.

Outworkers. The employers of outworkers, except in a few notable cases, do not forward lists until they are reminded that their neglect to do so makes them liable to penalty; even then, some do not send until a second or third application has been made.

Trade. Trade throughout the iron industries has been very good, but the great feature of the year has been the phenomenal rush of orders for the harness trade generally for the supply of war material. Thoughout the year, but gradually falling off to its close, all the trade have been working at high pressure—the home trade has been practically paralysed by high prices and delayed deliveries. The latitude allowed with reference to the employment of women and young persons on War Office contracts has not, in the majority of cases, been abused; but there are always those who take a yard if you give them an inch, and cases of excessive overtime have undoubtedly occurred.

Nothing could have more clearly proved the wisdom of the regulations of the Factory Acts than the experience gained by both masters and workpeople during the recent War Office rush. The two hours allowed were not long maintained. Very soon it was found that if work was continued untill 10 p.m., those who stayed late did not come until 9 or 10 next morning, and before the end the general opinion of the masters was "that there is nothing in overtime."

Mr. Parkes (*Nottingham*) writes hopefully as to overtaking the work ahead of him in his new district:—

Work. There is now no reason why all the factories and workshops in this county should not be visited at least once a year, and I hope, at the end of the year, to report that this has been done. None of the works under Special Rules have been visited four times, but nearly all of them have been visited twice or three times during the past year; and in this respect also I confidently expect to be able to visit most, if not all, Special Rule works four times annually.

Sanitation. I am pleased to report that sanitary matters have received careful attention. Thirty-seven complaints have been made to local authorities during the year; of these 18 are remedied and the remainder are in hand. In the city of Nottingham certain Inspectors are specially deputed to attend to sanitary matters in factories and workshops, with very beneficial results.

Mr. T. O. Edwards (*Cardiff*) remarks on local sanitary vigilance, and speaks favourably of work in tin-plate factories:—

Sanitation. I have again to report that inspection of workshops by the local authorities can be summed up in "general inspection and attention to complaints." The only two exceptions are Cardiff and Barry, where there is co-operation between the local and Home Office authorities. The following shows the work of the Cardiff Inspector, who devotes his entire time to workshop and shop inspection:—

Visits to workshops in 1900	2,121
Nuisances abated in workshops in 1900...	496

Tin plate. During the earlier part of the year I visited all the works in this section of the district, with a view to ascertain the result of the substitution of "zinc chloride flux" for palm oil, and of "pink meal" for bran in the process of manufacture. I questioned the workers individually in each factory, and wherever I met with a possible case I followed it up by an interview with the medical man; but I did not meet with even a single case where the worker suffered from the result of employment. I also visited a zinc chloride factory; there the men all informed me that they considered their work healthy.

Mr. Hilditch (*North Wales*) notes an awakened interest among the local authorities:—

Local authorities' I am pleased to say that the local authorities in nearly all the towns are paying more attention to the sanitary condition of workshops than was formerly done. Attention is also given to the matter of sanitary conveniences in factories when complaint is made. With the exception of brickworks, the sanitary conveniences are generally fairly satisfactory. With reference to the brickworks, the conveniences are of a most primitive kind, and are generally found in a very dirty condition. I intend taking up this matter especially this year.

Complaints. One complaint only has been received in connection with a factory during the year. This was as to the use of benzine in a laundry. The complaint was that the spirit was not used in a separate building. On investigation I found that the quantity used and stored at one time never exceeded a pint or thereabout, which was obtained from a local oil store as required.

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Industrial development.

One large works is now in course of construction for the production of a special steel for use in the manufacture of water tubes for boilers of the Belleville type. I understand that the firm also intend putting down plant for the drawing of the tubes and manufacture of the boiler.

The most important engineering works in the district have extended their works considerably during the year. The whole plant, including cranes, is electrically driven. A large clothing factory has also laid down plant for a similar purpose.

Trade has been good generally through the year, but in some of the brick and terra-cotta works trade seems to be falling off during the last few months. This is said to be chiefly attributable to the high price of fuel.

Plant for generation of electricity is being put down in many of the towns of the district, the occupiers in most instances being the local authorities.

Having regard to the natural advantages of the country for the generation of the electric current by water power, it seems strange that the rural district authorities and others fail to utilise this enormous energy that is daily running waste.

Mr. Clark (*Wolverhampton*) speaks well of the conditions under which some of the trades in his new sphere are carried on :—

Nail and chain trade.

I have noticed an entire absence of "half-time" labour in this class of workshop, which I think is largely due to the attitude of the local School Boards, who do what they can to discourage half-time attendance at school. Boys and girls are to be found commencing work as soon as they are 13, and some care is required to see that they are eligible for employment at that age.

A large number of women are engaged in the manufacture of nails and chains, and they are mostly in the small workshops. A large proportion of these women work independently, *i.e.*, paying rent for their shop or their stand, and buying and selling their own material, but as a rule conforming to the Factory Act period of employment.

Particulars Clause.

I am glad to be able to state that the Particulars Clause is on the whole well observed in the chain workshops that have come under my notice. The few irregularities that I have met with have been of a technical nature, involving no grievance on the part of employees against employer. The rate of remuneration in chain works is almost entirely based upon the Union price list, a copy of which every workman has in his possession, or is well acquainted with the contents of.

Occupiers have promptly supplied the particulars, where deficient, upon the necessity of doing so being pointed out to them.

I have not met with any serious breach of the Particulars Clause in any of the lock, latch, and key works ; the prices and particulars being usually given to the piece workers in some suitable form at the time of giving out the order. This has been the means of preventing what has occasionally been a grievance in the past, viz., the necessity of bargaining about the price after the work has actually been done.

Mr. Brothers (*Birmingham*) contributes a special report on artificial silk, and a note on sanitation :—

Artificial silk.

The title of the firm at Wolston, near Coventry, is now "The New Artificial Silk Co., Ltd.," not the "Artificial Silk Weaving Co." No weaving is done there at present.

The Process.—I have divided the whole process into eight operations.

1. Preliminary.

Cotton waste is bought already bleached and freed from seed and grease ; it is sorted by hand on arrival to throw out all grease-stained bits, and is then dried at 110° F.

2. Nitration.

The cotton, which contains less than 1 per cent. moisture, is put into earthenware jars (1 kilo in each jar) with a mixture of nitric and sulphuric acids ; the temperature is kept uniform and low to prevent formation of highly-nitrated compounds. After six hours the nitro-cellulose formed is pressed into a hard cake to remove the acid liquid ; the pressed cake is next roughly broken by hand, and washed mechanically till free from acid. The washed nitro-cellulose is then dried in a hydro-extractor, which leaves about 28 per cent of moisture.

3. Collodion room.

The dried material is put into a drum with a mixture of alcohol and ether ; it dissolves to a liquid stiffer than treacle, which is next forced through a filter by air pressure to ensure a perfectly clear liquid. The clear collodion solution is now ready for the production of artificial silk.

4. Spinning.

This is the name given to the operation by the company. The clear solution is forced under 300 to 400 lbs. pressure to the silkworm machine which "spins" the silken filament, the sticky liquid being ejected through glass jets with orifices $\frac{1}{100}$ of an inch or $\frac{1}{10}$ mm. in diameter. The room is kept at a temperature of about 72° F., so that the ether evaporates readily, and the collodion on its passage from the jet to the bobbin, a distance of 2 ft. 9 in., is solidified ; the filaments from several nozzles meet together and are wound as an untwisted thread upon a bobbin.

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5. Twisting. The bobbins are next unwound on a twisting machine, which strands the several fibres into a twisted thread that is rewound on to a bobbin.

6. Reeling. The spun, or twisted, silk thread is reeled off the bobbins on to reels forming skeins similar to ordinary silk skeins.

7. De-nitration. The material, being nitrocellulose, is highly inflammable, and the skein is next treated with calcium sulphydrate solution, by which, it is said, the nitro substitution product is re-converted into cellulose. This treatment is followed by a wash, next by a weak chlorine bleach, and finally by another wash, after which the skeins are dried.

8. Grading. The dry skeins are graded as to size of thread by "dramming," *i.e.*, by weighing each skein; and skeins of like fineness are put together into bundles.

This completes the operations carried on by the company, the bundles being sent to the dyer or weaver. Several of the processes are characteristic rather of a chemical works than of a textile factory, being similar to the manufacture of collodion and of gun-cotton. No. 4 has been called spinning probably from its resemblance to the spinning of its thread by the silkworm, but instead of one twin filament only being wound by the worm into a cocoon, a number of filaments, 16 or more, meet together immediately after formation, and are wound together on to a bobbin.

Operation No. 4 is a combination of the preparatory process of silk-winding, in which the twin filaments from several cocoons are wound off together on to reels, and the subsequent initial spinning process of winding the raw silk skein on to bobbins; the spinning operations thus resolve themselves into :—

"Winding" the raw silk fibre, and

"Throwing," which includes doubling, twisting, and reeling.

Mr. J. L. Edwards (Swansea) :—

Children. There are no half-timers in this district, though a considerable number of privileged young persons of 13 years of age are employed.

Textiles. It is mainly, if not wholly, in the rural parts of Wales that textile factories abound. This is, of course, owing to the physical contour of the country—a hilly one with an abundance of mountain streams, which give the necessary water-power. This is in marked contrast to the large towns of England, where the introduction of steam centralized the factories, and which caused large towns to spring up around them. These rural industries seem to be reviving in Wales, as shown by the great increase in the number of power-looms used, together with higher technical skill, in improved patterns, and in better quality of fabric.

The end of the year finds some points for settlement still outstanding, but they have all been under consideration, and ought not to tarry with us much longer.

I have, etc.,

J. A. REDGRAVE.

H.M. Superintending Inspector of Factories.

H.M. Chief Inspector of Factories.

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NORTH-EASTERN DIVISION.

REPORT OF THE SUPERINTENDING INSPECTOR.

March, 1900.

SIR,

THE past year has been, in the way of trade, somewhat unusual, for whilst everyone having any connection with iron and steel has been pressed with an overwhelming demand, the textile industries have been greatly in arrear of ordinary years, and especially has this been so in the West Riding of Yorkshire.

ACCIDENTS.

Circular saws still cause a large number of accidents, but there is a great difficulty in getting the workers to use the guards provided. Various reasons are stated, the chief being that the sawyer cannot see the run of his saw. In nearly all cases guards are provided, though rarely in position.

I am glad to say that accidents from flying shuttles have decreased. In cases where an accident has occurred owing to the loom being unguarded legal proceedings have been taken.

Commander Smith (*Sheffield*).—It will be recognised that a very considerable amount of time is spent, not only by the District Inspectors but also by the Superintending Inspectors, in looking over and initialing the large numbers of accident reports. Further and heavy labour falls upon the District Clerks, and finally on the Statistical Department of the Home Office, in dealing with these reports. With all deference I would submit that it is worthy of consideration whether any good results follow which in any way compensate for the amount of time spent in work of this kind. I would further submit that a wrong impression is conveyed by the statistics as now presented. Large numbers of the accidents reported as being factory accidents, and conveying the idea that they are caused by machinery or by circumstances peculiar to work in factories, can hardly be so classed. I have looked over the list of accidents sent out from this office during the month of December, 1900, numbering 217. After looking carefully into each of these casualities, I am of the opinion that in 163 of them, so far as the legal powers given us under the Factory Act are concerned, we have absolutely no jurisdiction. It is unnecessary to mention in detail the cases to which I refer, but I take a few samples :—

Caught by a shovel.
Screw-jack fell over wheels,
Crowbar dropped on foot,
Bar slipped,
Fell over a wheel,
Fall of a 56 lbs. weight,
Crushed between two casks,
Fell over a barrow,
Fall of a brick from a stack,
Fall of a plank,
Fall of a cart shaft,
Fell over another boy's wooden leg,
Fell in descending from the roof of a coach,
Fell against a smith's anvil,
Bit of hot coke in boot,
Stumbled over a floor-plate,
Caught by wood packing,
Fell into a cellar.

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Although metal-grinding is carried on in works other than cutlery works, a grinder in Sheffield is generally looked upon as a man grinding in some branch of the cutlery trades. The process has been described in detail in the report of the Dangerous Trades Committee, and certain recommendations were made, the one meeting with the greatest amount of local opposition on the part of the employers being "Recommendation No. 13," relating to the "safety area" in front of the stone. The records at the Home Office show that this opposition was not shared by the workmen. I am still of opinion that the present prescribed area is insufficient, and that it does not provide for the workers the security to life and limb or the freedom from unnecessary injury to health intended by the Factory Act of 1895. Since the middle of February, 1898, seventy-one accidents from the breakage of grindstones have been reported to me. A careful investigation has been made in each case, and a record kept as to the direction in which the various fragments have flown, with other details. These records will be available should they hereafter be required. I will, however, mention one case. On January 11th, 1901, a 4 feet 11 inch stone, intended to be used for file-grinding, broke in three large fragments and a few smaller ones. Two large sections flew directly forward—one into the yard, the other struck and knocked to pieces the masonry of the fireplace, which was almost immediately in front of the stone. Another section fell into the trough. The fireplace has since been built up as it was before. The stone had been "raced," but had never been run for the purpose of grinding. It had only revolved for a few minutes, and had not reached its full speed. It had stood in the yard outside for about nine months, where doubtless it had absorbed moisture, which probably lodged in any crack or flaw that happened to exist. There was a very heavy frost just before the breakage, and it is quite possible that the mishap was caused by expansion due to freezing of any water within the stone. By good fortune there happened to be no workers near the fireplace at the time, or unquestionably they would have been killed.

I would very strongly recommend that Section 25 of the Act of 1895 should also apply to factories other than tenement factories in which cutlery-grinding is carried on. In some works—as it happens not many—cutlery-grinding is done, to a large extent, under conditions identically and precisely the same as those existing in a tenement factory; but as the law now stands important regulations apply to the one but not to the other.

Grinding hulls, with rare exceptions, have no glazed windows, and on this account have—under Section 33, Schedule A—been exempted from periodical limewashing. As a rule, these places are in a very dirty condition, accumulations of mud and dust being found upon the walls. I think it very desirable that they should be periodically limewashed. In some places this is already done. I do not suppose that the limewash would long retain its colour, but the mere fact of limewashing would secure that the walls were swept down and cleaned at least once a year, and the purifying effects of the lime would be beneficial. In opposition to this suggestion it would probably be said that limewash would produce a certain light prejudicial to efficient work. The answer to this is that limewash does not necessarily mean whitewash. The lime could be coloured, as is done in burnishing shops in the electro-plate trade, where the same objection is raised.

The safety appliances required by the Special Rules for bottling aerated waters may possibly be considered under the heading of "fencing." Having noticed in the papers that a girl employed by one of the largest firms of aerated water manufacturers in London was caught in the neck by the bursting of a syphon, and died before reaching the hospital—the fragments of glass inflicting such injury notwithstanding that she was wearing a mask at the time—I have been led to consider how such a mishap could be avoided, and have suggested that a leathern flap should be attached to the lower part of the mask, and hung loosely, the length being about five or six inches. This has been done in several works. I have made numerous enquiries, and find that the mask in this form is readily worn. It has not been put to any practical test, but when in use it appears to me impossible that an accident such as has been referred to above could occur. A good guard, known as the "Shoulder" face mask, made by Sidney Bros., London, would answer the same purpose.

Section 82 of the Act of 1878. This section formerly placed in the hands of the Inspector a powerful lever for doing good—a power, alas! which has practically disappeared; for, however great or however culpable the neglect may have been, it is exceptional for any Bench of Magistrates to inflict more than a small penalty, the argument invariably used by the solicitor for the defendant being that the question of compensation will be dealt with in another court. I maintain that this, although accepted, is an improper line of argument, the case before the Justices, being under the Factory Act, to be heard on its merits under that Act. Any case subsequently going into the County Court would be, and doubtless is, heard there on its merits. The result of this is that the careless man is no more penalized than the careful one. He insures and takes his chance if an accident happens. Insurance agents are generally well-skilled in dealing with injured workmen, who, frequently acting without legal advice, accept remuneration quite inadequate for the injuries received. The practical remedy seems to be to fix a minimum penalty for offences under this section.

Since writing the above my attention has been called to a paragraph which appeared in the "Standard" of January 5th, 1901, under the heading of "Insurance Companies and Workmen's Compensation." Judge Gye, sitting at the Andover County Court, is reported to have said: "I have made it a rule that I shall not allow the interference of any insurance company in workmen's compensation cases. It is entirely a matter between the workman and his employer." He further said: "Cases have only recently come before me where the employers

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were desirous and willing to compensate because of old and faithful service; but the insurance company would not allow it and fought the action. At Southampton, the agent of an insurance company went to a man who had lost, in an accident, the whole of the fingers of one hand, and was almost successful in getting him to accept £5 only, because (as he said) that the building was not 36 feet high." (Probably 30 feet was meant.) "I gave him £180 instead."

I recently conducted a case at Doncaster under this section. I proved that a sawyer had been caught by the back portion of a circular saw. He lost the little finger of his right hand, besides sustaining a severe shock, and never can again be in the same position for earning his livelihood as a sawyer that he was before. A guard in this case would unquestionably have prevented the accident. I proved that the occupier had been required, both verbally and by letter, to provide saw guards. As a matter of fact, all other saws in the works had been fenced, but this one had been neglected. The chairman of the Bench remarked that it was in his power to inflict a penalty of £100. He, however, imposed £10 only. The solicitor for the defence said that the question of compensation would be decided in another court.

In August, Commander Smith furnished the appended account of an oil-gas explosion :—

A fatal explosion recently happened in some works not far from the Great Central Station in Sheffield, and owned by the railway company. Oil-gas is made on the premises. It is not sold, but is taken away in cylinders on wheels and pumped into the reservoirs on the railway carriages of the Company, to be used for lighting purposes.

The oil used is mineral oil, and comes from Glasgow, in cargo-trucks, to a large tank on the premises holding about 2,000 gallons. From this tank it runs through ½-inch pipes to small cups leading to a retort. This is so constructed that there is an upper and a lower retort. The oil runs slowly into the top one, where it is volatized, and passes to the bottom, thence through a descension pipe to hydraulic boxes holding about 2½ gallons of water. After passing through this water, it goes through the main conveyor and through two condensers to a washer or cylinder full of water, and is then purified in a vessel containing lime and sawdust. Passing next through a meter, it is received in the gas-holder, which is of ordinary construction, whence it is pumped into store-holders, in which the pressure is 150 lbs. to the square inch. For pumping the gas from the gas-holder to the store-holders there is a small engine in which are two cylinders, one being the cylinder for working a piston-rod which drives a pump in another cylinder facing the one before referred to. Between this pump and the store-cylinders the pressure is said to be from 135 to 140 lbs. per square inch. In the conveying pipe there are certain joints; one of these leaked, causing an escape of gas. The retorts are only a few yards from this joint, and the furnace and boiler for working the engine are not many yards further off; consequently the explosion of gas is easily accounted for. The unfortunate man was found burned to death in the engine-house.

To me it appeared that the joint was defective in structure, being simply lead piping opened with a tool, a brass spigot hammered into place, and, when tight, soldered in. It is stated that this joint was only liable to a maximum pressure of 150 lbs., but it must be borne in mind that unless the pressure-gauge is carefully watched, the interior pressure may be considerably increased, there being no safety-valve, and the pressure in the store-holders may become greater than what is intended. In my opinion, a safety-valve to blow off at a certain pressure might easily be fixed, but it would, of course, be necessary that the escape should be taken into the open air and at a considerable distance from any furnace. As a substitute for this, Mr. Warren, my colleague, suggests an automatic arrangement for stopping the pumping-engine when the pressure in the pipe has reached a certain maximum. I am asking him to give me drawings of this proposed plan, which will accompany this report. The plant was laid down by Pintch's Patent Light Company. At the inquest, Mr. George Lucas, their assistant works manager, was of opinion that the sweated joint was good and effective, adding that this joint was in common use in similar works. Against this opinion, however, I may mention that on visiting the oil-gas works owned by the Great Northern Railway Company, and situated at their Carr Works, Doncaster, I found that the leaden pipes leading from the pumping cylinder had been taken away and hard iron pipes with screw joints substituted. The representative of the firm whom I questioned stated that the lead pipes often choked. If that was so in the case immediately under our consideration, that alone would account for the escape and subsequent explosion. More attention might, I think, be paid to the position of retorts and furnaces, and they should be separated from portions of the works where escape of gas is a possibility.

P.S.—Since writing this report I have received from Mr. W. Gaythorn Young, the Analyst to the Great Northern Railway Company, a copy of "Instructions to Gas-makers," formulated by him, and issued in April last to the different works where oil-gas is made. These instructions contain much that is valuable. He adds, "You will, perhaps, have seen that we have substituted an 1½ inch steel main to carry the high-pressure gas from the compressers to the holders; this is a considerable improvement on the lead main, which is only ½ inch at the joints, and I am introducing the steel main at our other works. With regard to the adoption of a safety-valve, I have already prepared an arrangement by which a gong is sounded when the pressure reaches 180 lbs. per square inch, and which will continue until the engine is stopped."

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Mr. Warren (*Sheffield*) gives the following report of a fatal accident due to suffocation by ammonia fumes at a brewery occupied by Messrs. A. H. Smith & Co., Penistone Road, Sheffield, in June, 1900 :—

The deceased was in charge of an ammonia refrigerator. Ammonia, stored under pressure in a condenser, consisting of coils of pipes, is passed through a valve into the expansion coil, whence it is again drawn off by a pump and compressed back into the condenser. The ammonia, constantly passing through the cylinder of the pump, picks up a certain amount of oil and dirt, which is periodically cleared by blowing it off through a valve. In this case the valve was fitted with a short pipe, about 6 inches long, which exhausted into a bucket. The deceased had opened the valve by means of a key, which unfortunately fell off the spindle, which was inverted, and slipped through a hole in the floor. Thus he had no means of closing the valve, and the ammonia fumes, which are under a pressure varying from 100 to 190 lbs. per square inch, quickly escaped into the room. The deceased was overcome by these fumes and suffocated before anybody could rescue him.

The firm have now carried the exhaust pipe into the open air, so that, while blowing through, no fumes can escape into the room. Firms in this district owning similar plant have been recommended to do likewise.

Mr. Prior (*Huddersfield*).—During the year we have received notices of 794 accidents, 10 of them being fatal ; but the verdict of a Coroner's jury being that death in one of these cases was due to natural causes, and was not the result of injury, the notice has not been included in our statistical return. One of the fatal accidents was due to a man who was driving a horse drawing a railway waggon, within the curtilage of a factory, stumbling over a point in the railway and being run over by the waggon ; one was caught and crushed by a railway truck which was being shunted in a railway warehouse; two were killed by revolving shafting, one whilst limewashing, the other whilst oiling millgearing ; one overstrained himself in lifting cloth ; one was stabbed whilst putting a new handle on a chisel ; one died from lockjaw caused by the crushing of his thumb in cogwheels ; one fell off a slipping ladder ; and one had his head crushed by a steam hammer. Whether the last case was one of accident or suicide was not clearly proved at the inquest.

Early in the year I received an instruction from you that the guards recommended in the Report on Accidents in Cotton Machinery were to be as far as practicable adopted in woollen and worsted manufacture ; that carriage wheel and faller stop guards were to be attached to woollen mules, and that back carrier wheel guards were to be applied to worsted spinning machinery.

This improvement I have endeavoured to effect with as little friction as possible, and I have been fairly successful in my efforts ; but I fear that some employers in my district, instead of recognising the fact that I am acting in accordance with instructions from the heads of my department in requiring them to attach guards which are to be seen on all machines used by their foreign competitors, are inclined to regard the little expense which my requirements involve as a burden imposed on them to satisfy certain fads and fancies which are the emanation of my own brain, rather than the result of the deliberations of gentlemen having far wider and longer experience than my own.

I venture to submit to you a drawing of a guard which is not novel, but which is not so well known as it deserves to be ; an appliance for preventing the raising of the beater covers in cotton opening and cleaning machinery before the beaters have ceased to revolve. This contrivance is mentioned on page 15 of the Cotton Machinery Report in paragraph 5 as being in use in "Russia and elsewhere," and it is shown in a drawing on page 77 of the same report, but not sufficiently clearly to enable those not familiar with it to understand its action.

The beaters in the machines used in a scutch room revolve on an average 1500 times per minute. It will thus be seen that when they become clogged and require cleaning, they continue to revolve for some little time after the motion of the machine is supposed to be stopped by throwing the driving strap from the fast to the loose pulley. Then some impetuous youth is liable to prematurely raise the beater cover, and thrust his hand inside before the revolutions of the beater have ceased, amputation of part of the arm being generally the result. An endeavour to remedy this was many years ago made by attaching locks to the beater covers, but this was attended with much inconvenience from the fact that the overlooker who had charge of the key would often be absent when the beater cover required raising, and thus the system of locking them gradually fell into disuse.

An appliance which effectually prevents the premature opening of beater covers has since been invented. Inside the flange of the pulley driving the beater a second pulley, if I may so term it, is attached, having a slot in it. An iron rod, either straight or cranked as desired, extends from the end of the beater cover, and goes inside the rim of the inner pulley previously referred to. As long as the beater continues to revolve, it is impossible to raise the beater cover, which can only be done by passing the end of the iron rod through the slot in the pulley designed to allow it to lift and drop again into place. I am indebted to my colleague, Mr. Dunolly, for the drawing of the appliance herewith forwarded.

Another drawing herewith sent to you shows the means adopted for attaching carriage wheel and faller stop guards to woollen mules hitherto unprovided with such guards. In woollen mules it is not necessary or desirable to carry the wheel guard as close to the slip as would be done in a cotton mill. Woollen spinners and piecers do not work barefooted, and as the mule carriage generally runs quite out to the end of the slip, were the guard to accidentally get bent downwards and catch the slip end, a fracture would result.

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On page 20 of H.M. Chief Inspector's Report for 1898 I described the attempts which had been made to produce a guard for the revolving cylinders of cloth cutting, shearing, or as they are commonly called, cropping machines, which have in the past cut off hundreds of finger ends. These guards have gradually become perfected, and I have a great pleasure in sending you a photograph of the best guard now on the market, which consists, as you will see, of a wire guard completely covering the cylinder, and which is hinged so that it can be raised when required for cleaning purposes.

I also send you a drawing of the best and most popular guard I have met with for wood planing machines. This guard, it will be seen, will cover the whole width of the revolving blade, and is easily adjusted, either vertically or horizontally, by the thumb screws shown on the drawing.

I may add that we are gradually having guards attached to all the water gauges on the steam boilers in this district.

Mr. Dunolly (*Huddersfield*).—Of the fatal machinery accidents two were caused by insufficient fencing, both occurring in textile factories. The first accident occurred at the spur wheels which drive the condenser of the carding engine. The condenser is generally driven by belts instead of gearing. The second fatal accident occurred to a painter who had been engaged to limewash the walls of a factory. In the course of his work he got on the top of a water tank, immediately above which was the main driving shaft. The man was wearing a long apron, and in stepping over the revolving shaft it caught and was wrapped round it, drawing the man round the shaft with fatal results. This accident should satisfy factory occupiers that such a contingency as accessibility to the millgearing for the purpose of limewashing or structural repairs can reasonably be taken into account in deciding whether the millgearing is in such a position as to be equally safe to every person employed or working in the factory as it would be if it were securely fenced.

In the appended tables is an analysis of the accidents which have occurred in the Huddersfield district from the 1st of January to the 31st of December, 1900, the accidents being apportioned to each machine according as the injury was caused whilst employed at the ordinary work, or whilst cleaning the machine in motion, or oiling, or whether such accident was fatal.

A.—Analysis of Accidents in Textile Factories.

	Ordinary work.	Cleaning in motion, and picking off waste.	Oiling.	Fatal.	Total.
Textile.					
Rag grinding	6	2	—	1	9
Burring	4	—	—	—	4
Opening	6	1	—	—	7
Wool extracting	2	—	—	—	2
Combing	1	1	—	—	2
Dressing frames	1	—	—	—	1
Washing	3	—	—	—	3
Carding machine gear	6	19	1	—	26
„ „ belt and pulley ...	7	6	1	—	14
„ „ other parts	17	6	—	—	23
Mule carriage	19	5	—	—	24
„ „ wheels	6	2	—	—	8
„ „ fallers	5	—	—	—	5
„ „ headstock	9	1	—	—	10
„ „ bands	10	—	—	—	10
Jenny headstock	5	3	—	—	8

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A.—Analysis of Accidents in Textile Factories—*continued.*

——	Ordinary Work.	Cleaning in motion, and picking off waste.	Oiling.	Fatal.	Total.	
TEXTILE—*cont.*						
Gill box	3	1	—	—	4	
Drawing box	1	1	—	—	2	
Roving frame	3	4	—	—	7	
Spinning frame	10	4	—	—	14	
Twisting frame	11	5	1	—	17	
Winding	6	2	—	—	8	
Beaming	5	—	—	—	5	
Loom shuttle	9	—	—	—	9	
„ „ other parts	34	10	—	—	44	
Squeezer	6	—	—	—	6	
Dyeing machine	6	—	—	—	6	
Cutting machine	8	4	—	—	12	
Finishing machine	5	—	—	—	5	
Steaming and raising	3	3	—	—	6	
Tentering	4	—	—	—	4	
Brushing	2	—	—	—	2	
Other machines	12	—	—	—	12	
						319
TOTAL NUMBER OF ACCIDENTS BY TEXTILE MACHINES.						
Hand labour	84	—	—	—	84	84
TOTAL NUMBER OF ACCIDENTS OF ALL KINDS IN TEXTILE WORKS ...						403

B.—Analysis of Accidents in Non-Textile Factories.

——	Ordinary work.	Cleaning in motion.	Oiling.	Fatal.	Total.
NON-TEXTILE.					
Band saw	3	—	—	—	3
Circular saw	12	—	—	—	12
Wood planing	11	—	—	—	11
Shaping and slotting	1	—	1	—	2
Milling	1	—	—	—	1
Lathe	33	—	—	—	33

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B.—Analysis of Accidents in Non-Textile Factories—*continued.*

——	Ordinary Work.	Cleaning in motion.	Oiling.	Fatal.	Total.	
NON-TEXTILE—*cont.*						
Drilling	1	—	—	—	1	
Shearing and punching	6	1	—	—	7	
Rolling mill	3	—	—	—	3	
Grindstones and polishers	7	—	—	—	7	
Press, hydraulic and power	11	—	—	—	11	
Iron planing	4	—	—	—	4	
Main shafting	2	4	1	2	9	
Main pulley and belt	11	2	2	—	15	
Engine	5	4	—	—	9	
Crane	20	—	—	—	20	
Hoist	12	—	1	—	13	
Furnaces	6	—	—	—	6	
Hot and caustic liquids	21	—	—	—	21	
Molten metal	10	—	—	—	10	
Steam hammer	2	—	—	1	3	
Platen machine	—	1	—	—	1	
Folding „	1	—	—	—	1	
Ironing „	3	—	—	—	3	
Starching „	2	—	—	—	2	
Wringing „	1	—	—	—	1	
Fan	3	—	2	—	5	
Other machines	20	—	—	—	20	
						234
TOTAL NUMBER OF ACCIDENTS BY NON-TEXTILE MACHINES.						
Hand labour	117	—	—	3	120	
Warehouses	37	—	—	—	37	157
TOTAL NUMBER OF ACCIDENTS OF ALL KINDS IN NON-TEXTILE WORKS ...						391

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The total number of accidents in Textile Factories amounts to 403. Of these, 319 occurred at machinery in motion by power. These 319 accidents may be summed up as follows :—

Process.	Ordinary work.	Cleaning in motion.	Percentage of Accidents due to cleaning in motion.
Preparing machinery	24	4	16½
Carding, &c., &c.	30	33	110
Spinning	93	29	31
Weaving	43	10	23
Finishing	46	7	15
Total	236	83	—

The total number of accidents in Non-Textile Works is 391. Of these, 234 were caused by machinery in motion. Main driving belts and pulleys are responsible for 24 accidents, of which 10 (or 40 per cent.) were due to cleaning or oiling the machines whilst in motion.

Mr. Hine (*Leeds*) reports that out of the accidents for the year nearly 100 were from circular saws, notwithstanding all that has been done and the amount of money which has been spent during the last few years in providing guards. I feel confident if the guards were always properly adjusted by the sawyer some of these accidents would have been prevented.

Planing machines, Mr. Hine says, are the next most dangerous machinery to the saw, In wood-working he adds that he has investigated during the latter part of the year four accidents from planing machines, all provided with guards but not properly adjusted. This carelessness of adjustment seems peculiar to wood-working machinery owing to two reasons, first, these machines for many years were without guards ; secondly, the work is so constantly changing that the workman will not be at the trouble of constantly adapting his machine to the work he is fashioning.

Mr. Hine reports 43 fatal accidents, and says this is a very large list of fatal accidents, but five men were killed at one time by explosion of furnace, cause not satisfactorily explained.

Mr. Hine (*Leeds*) :—During the year ending December 31st, 1930, no fewer than 3,333 accidents have been reported to me, 66 of which were not reportable, leaving 3,267 accidents of all kinds, but many, I am glad to say, have been of only a trival nature, and consisting to a large extent of accidents on the docks, railway warehouses, &c. Of the above total 1,061 were either caused by machinery in motion, or by explosion, &c., and were such as are also reportable to the certifying surgeon. Nearly 100 of these were caused by circular saws, notwithstanding all that has been done and the amount of money that has been spent during the last few years in providing guards. How many more accidents from circular saws would have occurred had not guards been provided, of course it is impossible to say, but I feel confident that if the guards were always properly adjusted by the sawyer, some, perhaps not many, of this number would have been prevented. The same might be said of the planing machine, in my opinion the next most dangerous wood-working machine which is used to any large extent. During the latter part of the year I investigated four accidents, which occurred within one month, from planing machines, all provided with guards but not properly adjusted. This carelessness of adjustment seems peculiar to wood-working machinery, probably owing to two reasons, the first being that for many years these machines were worked without any guards at all, and secondly to the fact that the nature of the work is so constantly changing that the workman will not be at the trouble of adapting his machine to the work he is fashioning.

As reported elsewhere, lathes were responsible for 76 accidents, only a very small number of which might have been prevented by guards. On the other hand, most would probably not have occurred had the workman given a little more thought to his own safety. This week I have attended an inquest on the body of a man killed whilst putting his head underneath the revolving part of the lathe to clean out the "turnings," and this contrary to a caution given to him not to do this immediately before he was injured. Nine accidents occurred through cleaning machinery in motion. This number does not seem great, considering the large area of my district over which they are spread, and I hope it may be a permanent improvement.

In a list elsewhere I report 11 accidents from power presses—three of these were from tin-stamping machines ; in one case proceedings were taken against the firm for not providing

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guards, to which attention had been previously called; and guards to prevent the other two could not be arranged. The remaining eight were caused by brick-presses. Most of these should not have happened, as all or nearly all brick-presses are or have been provided with guards in my district. Other accidents have occurred from presses or punches moved by power for such purposes as cutting out leather for soles and heels of boots, punching holes in horse-shoes, boiler-plates and other metal, punching eyelet-holes in labels, &c., but it is difficult to say how these could have been prevented, except by greater care on behalf of the workman.

The one accident reported as caused by fire did not occur in a building, but was due to the man, a night watchman in a brickyard, setting himself on fire by means of his lamp. He was supposed to have fainted or had a fit.

On the next sheet I append a summary of fatal accidents.

SUMMARY OF FATAL ACCIDENTS.

Explosion of blast-furnace (at one time)	5
Explosion of steam chest for warming men's food	1
Explosion of benzoline drum in chemical works	1
Fall into a pan of hot liquor	1
Set himself on fire by a lamp in brickyard at night	1
Machinery in motion	6
Drowned in dock	6
Owing to crane rope breaking	1
Falls in or about factories or falls of weights	12
Fall on docks or ships' hold	4
Crushed between hydraulic jack and horse-box	1
Crushed by wagons on docks or railway	4

This is a very large list of fatal accidents to have to report from one district, but it is difficult to know how many of them could have been prevented. By one explosion of a blast-furnace five men were killed, and according to the expert evidence at the inquest the furnace was properly constructed. The cause of the two other explosions was not satisfactorily explained. The accidents caused by machinery in motion can hardly be said to have been entirely through negligence in fencing, though one of them certainly was so. The occupier himself was running a circular saw without its guard and was killed by the wood being thrown back. Nor can those under the heading of "falls" be said to be want of proper precautions on behalf of the occupiers.

A rather extraordinary fatal accident occurred at some railway carriage works. A man was about to raise a horse-box off its wheels by means of an hydraulic jack. He placed the jack in position under the end of the carriage and leaned over it to reach a wedge or block of wood, and whilst so doing in some unexplained way he was supposed to have turned the valve, when the jack began to rise and crushed him between it and the carriage before he could get clear or anyone come to his assistance.

Mr. Seal gives an interesting account of accidents in the Bradford district for 1900, from which it appears that in spite of the fact that large numbers of women and children are employed not a single death has been recorded among them, and that of the 16 fatalities which took place there was not one which could be said to be reasonably preventable. It appears that a large number of injuries arose from picking waste and cleaning machinery in motion.

Hoist accidents form throughout this division an important item. Mr. Seal states that in the Bradford district automatic gates or closed doors, opening only from the inside, are largely in use.

Mr. Seal (*Bradford*):—The total number reported during the year is 1,077; of these 690 were reported to the certifying surgeon, all of which (with few exceptions not calling for enquiry) have been investigated and duly reported upon. Of this number 16 were fatal, and I append particulars of causation as follows:—

Hydraulic press	1
Lathes	1
Crushed by breaking moulding box	1
Strangulation	1
Machinery in motion	2
Railway plant	1
Cranes and lifting tackle	1
Inhalation of gas	1
Falls	7
Total	16

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As the prevention of accidents forms such an important feature in our work, I propose to briefly review the figures given above, and in so doing, I think, considering the large proportion of children and women employed amongst manufacturing machinery in this district, it is very gratifying to be able to chronicle the fact that not a single death has to be recorded amongst them whilst following their employment.

Another very consoling feature is that with one possible exception, the whole of the 16 fatalities were due to circumstances which either could scarcely have been foreseen, or which were so purely accidental as to preclude any supposition that they could have reasonably been prevented.

(i) The hydraulic press fatality was caused by one of the packing blocks jumping out and striking the deceased on his forehead, in consequence of some of the upper blocks being placed vertically instead of horizontally.

(ii) The lathe accident was due to a polishing stick, which the deceased was using in the ordinary way, being jerked out of his hand, and striking him violently on the stomach. The injury appeared slight at the time, and the deceased, though given his railway fare, walked home, a distance of three miles, and so aggravated the injury that he died the same night. Had he rested and taken proper treatment the doctor states he might easily have recovered.

(iii) Purely accidental, caused by the sudden breaking in two of a large moulding box, a portion of which falling on him inflicted fatal injuries. A slight internal defect was found, but it could not have been discovered prior to the breakage.

(v) One of the fatal cases due to this cause was very regretable, and due entirely to the man's thoughtlessness. He had been sharpening needles on a cylinder, and on restarting it he endeavoured to pick a bit of waste from the cylinder, which was revolving 160 times a minute, when he was caught by the cylinder surface and his head badly crushed. The machine was not in motion for a manufacturing process, and the waste he tried to remove could have done no possible mischief. In the other machinery fatality the deceased was assisting to remove cloth from rollers of a finishing machine which was standing at the time, when from some unexplained cause the drive pulley near to which he was standing got in motion, his arm was caught and he became entangled in the pulley and belting and another pulley near, receiving injuries from which he ultimately succumbed.

(vi) Fatality due to being caught between buffers of railway wagons.

(vii) Deceased was engaged with others pulling down an iron door when the hoisting chain broke, the door falling on him causing fatal injuries. This was a new chain tested to lift 30 cwt., but was only raising 9 cwt. when it broke, there being apparently no visible defect.

(viii) This was such an extraordinary case that it calls for more than passing notice. The deceased was a compositor, 23 years old, and had always enjoyed very fair health. Whilst following his ordinary work about 10 a.m., the ignition tube of a gas engine near, and in the open shop, suddenly broke. He attended to it, replacing it with a new one hanging near and returned to his work, the whole operation lasting only a few minutes. There was no smell of gas and he never complained; but about two hours afterwards he was seen to be holding his chest, stretching and yawning. He went home, had dinner, returned to work, but feeling unwell left at 4 p.m., sickened and died eight days afterwards. The doctor who made the post-mortem stated that deceased died from congestion of the lungs, brain, and spinal cord, paralysis of the nervous centres, the congestion of the lungs being secondary, and produced by inhalation of gas, there being no other disease. An apprentice, who assisted him to replace the tube, states there was no smell of gas and that the gas jet remained lighted whilst the deceased replaced the broken tube. The doctor's evidence must, however, be conclusive, so what apparently happened was that the explosion blew out the gas, and that in leaning over the jet to replace the tube he deeply inhaled some gas; but that whilst the boy was fetching the tools he relighted the gas jet and completed the work.

(ix) The fatalities due to falls were all more or less purely accidental, one caused by falling down a ship's hold; another, drowned by falling into the water whilst stepping from one barge to another; a third occurred through falling over a board left on the floor. In the fourth case deceased fell from a ladder on which he was standing, screwing up a pipe overhead, a distance of only a few feet; whilst a fifth was due to slipping into a tank of hot water, only 3 feet deep, from which the cover had been removed by some person unknown. The two remaining cases were caused by falls from outside doors whilst engaged in hoisting operations, but no reasonable precaution appears to have been overlooked, the gear and all surroundings were in good order, there being no evidence whatever of neglect. At the same time I consider it most desirable that, in addition to the ordinary side handles, where folding doors are used and liable to be left open, as is frequently the case in summer for ventilation purposes, or as too often happens the doors are left open though no actual hoisting is being done, a chain or bar should be insisted upon.

Exclusive of the fatal accidents there were 1,061 reported, of which "cleaning and picking waste from machinery in motion" and "falls" were responsible for 121 and 134 respectively. This has been, and always will be, notwithstanding the continued extension of the Factory

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Acts towards its prohibition, the warnings of H.M. Inspectors, and the written, printed, or verbal instructions given to workers in many mills, still a prolific source of accidents and a continued source of anxiety to inspectors in charge of districts. It seems so easy and simple sometimes to try and remove a bit of waste near inrunning rollers or to wipe some oil from a light shaft or spindle, even though it presents a grave element of risk. Sometimes, indeed, the very danger has a fascination. An injured man remarked to me a few days ago, referring to some machinery where he had been injured, "I thought, sir, I should just have time to dodge it." The spirit of industry seems so strong in our workers that they frequently, too frequently alas, neglect ordinary precautions, and decline to stop their machines for a few seconds for cleaning and picking off waste purposes, even though the appliances for stopping the machinery are near at hand, and their wages often would not suffer if they availed themselves of the safeguard facilities.

34 accidents were due to hoists, none of which were fatal, and only one involving loss of limb, to which reference is made elsewhere. This, considering the numbers in use, is fairly satisfactory, but I hope for a diminution during the present year, as several important works have now adopted automatic gates, or closed doors which can only be opened from the inside by a man in charge, communication being made from the various floors by electric bells.

The shuttles in this district are on the whole well protected, the prejudice once existing respecting guards has to a great extent been overcome, the workers now recognising to some appreciable extent their use and value. Only one serious accident occurred, resulting in the loss of an eye, the shuttle being unfenced at the time, but the weaver was not actually using the loom (which was a new one) for a manufacturing purpose, but only at an experimental stage. Two prosecutions for unfenced shuttles have been taken, convictions and penalties following in each case.

Cranes have been the cause of 35 accidents, including one fatality, but they present no special feature calling for comment.

Only one accident reported due to breaking of a grindstone which was comparatively a new one, there being no apparent defect.

33 accidents have been caused by circular saws. This is a large total, but most of them were only slight, there being very few serious cases. The saws generally are fairly well protected with old types of guards, only a small proportion being fitted with modern up-to-date ones. The fact that they are to some extent guarded makes the requisition to fix more adjustable guards with proper fitting riving knives more difficult, but I am hopeful of continued improvement.

From lathes 31 accidents were reported, most of them of a light character, and none due to lack of fencing.

Only one accident, and that of a slight nature, has been reported from electric shock, a result which, considering the numbers of works in this district using electric lgiht, and those also who generate it, is very satisfactory. Wherever the recommendations of the dangerous trade committee on this subject are suggested, they are invariably acted upon with promptness.

Molten metal has been responsible for 23 accidents, many of which were due to the hot metal flying when coming in contact with a cold substance. It has been suggested to me that the use of wire spectacles might prevent injury to sight, but as this would interfere with the men's discernment, and might so cause them to stumble whilst carrying the metal, it would seem that the remedy would be worse than the disease. The workers also have a decided objection to any such proposal, and infinitely prefer to "run the risk."

Very few accidents have been reported from power presses, the power presses being well protected. One firm, however, though using a very effectual guard, have been responsible for three, which have led to still further improvement, and I am very hopeful that the current year will see a continued immunity.

I have much pleasure in submitting an extremely useful and ingenious contrivance, obviating all danger from cages constructed for working on two different sides. The idea was originated and carried out by Mr. E. P. Arnold Forster of Burley-in-Wharfedale, and this hoist protection is in constant use at Messrs. W. Fison & Co's mills there. It is not patented, and anyone is at liberty to make use of its valuable advantages. The necessity of some such contrivance was emphasized recently by an accident which resulted in the amputation of a boy's leg below the knee, his foot being caught between the bottom of the cage and the arch over door on opposite side of cage from which he entered. This accident could not possibly have occurred if some arrangement, as shown in this drawing, had been in operation, which may be described as follows :—(*a*) shows two sides of the cage, (*b*) the entrance, (*c*) a sliding canvas door, (*d*) a sliding panel which rises or falls according as (*c*) is raised or lowered, (*e*) the working ropes of hoist, and (*f*) the independent weight to the door (*c*). The result is that the ropes for raising and lowering the cage can only be worked when the sliding door (*c*) is down, and that side of the cage is absolutely safe; whilst, when the door (*c*) is up for entrance or exit on that side the sliding panel (*d*) shuts off the ropes, so that the cage cannot be moved from its position until the sliding panel is lowered by the action of lowering the door (*c*), and thus leaving the hoist rope free to be manipulated.

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Mr. Peacock, Bradford, finds a cause of frequent accident in the fast revolving cutters or knives for shearing or cropping cloth, in consequence of men and boys in charge of these machines attempting to remove fluff from the rail in front of cutters while the machine is in motion. I have seen a new machine fitted with an admirable guard consisting of brass wire, netting $\frac{3}{8}$ mesh, easily affixed and entirely covering exposed portion of knives. Several have been adopted in the Bradford district with complete success.

A guard is named by Mr. Peacock for power presses, which is greatly needed for this class of machine; the difficulty has hitherto been that each separate die required a separate guard, but under the arrangement in question this is not so. I have seen the guard named, and am of opinion that it is a most excellent arrangement and one by which accidents must be prevented. The strongest point in favour of this guard is that the hand of the operator is forcibly removed by the action of the rod *before* the die reaches the bed. I would suggest that the part of the rod which strikes the wrist if the hand remains too long should be of india-rubber tubing, and not, as now, of iron covered with tubing, which gives a somewhat severe blow.

Mr. Peacock (*Bradford*).—During the past year I have investigated fewer serious accidents than occurred in the three previous years in which I have been attached to the Bradford district. A severe accident happened in October last, due to the over-speeding of an emery wheel at an iron foundry in Bradford, the wheel had only been in use about an hour when it broke in three pieces, one of which fractured a man's arm, and another penetrated the roof of the foundry. The instructions of the emery wheel maker were that the speed was not to exceed 1,075 revolutions per minute, but no one at the foundry was able to say what speed had been used, the same spindle having done duty for some years; from the speed of the motor and train of pulleys I found that the speed had been 1,670 revolutions per minute. The speed has now been reduced to 950, and efficient guards have also been affixed.

An accident occurred at an aërated water factory through the bursting of a bottle of ginger beer; as a workman was taking the bottle from the filling machine it burst, and a piece of the glass penetrated the thick woollen gauntlet he was wearing and cut his arm; there can be no doubt but that the wearing of the gauntlet greatly reduced the severity of the injury.

During the year close attention has been given to the fencing of all dangerous machinery. In the textile industry the fencing of carriage wheels of spinning mules and the side straps of wool carding and scribbling machines has been largely carried out. The fast revolving cutters of shearing or cropping machines used in cloth finishing works have long been a source of danger, owing to the habit of the men and boys in charge attempting to remove the "fluff" from the rail in front of the cutters with their fingers whilst the machines are in motion. In consequence of two accidents on the same afternoon in different factories, I made enquiries for a suitable guard, and found a German made machine fitted with an admirable guard, consisting of brass wire netting of $\frac{3}{8}$ inch mesh, which is easily affixed and entirely covers the exposed portions of the knives. Several of these guards have since been affixed in the district with complete success.

Some factory occupiers have required severe warnings, and in a few instances prosecutions have been instituted for neglect to renew broken shuttle guards on power looms. The constant vibration on the "going part" of the loom tends to loosen the screws which are generally used for attaching the guard, and the weaver often removes the guard, being glad to get rid of what is unjustly called a nuisance. Probably the best way of securing the guard is by means of bolts passing through the "going part." A number of weavers have also been cautioned against tying up the shuttle guards and thus rendering them ineffective.

Circular saws and wood planing machines have been generally protected, and I am glad to say that there are very few of these machines in the district unfenced. The fencing of hoists has received considerable attention, several firms having introduced automatic rising and falling doors, but in all cases where the amount of work done by the hoist is sufficient to justify the keeping of one person in charge I strongly recommend that the hoist doors be secured on the inside only, and that bells or other alarms be affixed outside to call the attention of the hoist attendant.

An ingenious guard for the prevention of accidents by power presses has been introduced at a tinplate factory in Bradford; when the press is started by a workman the guard passes in front of the descending plunger before the latter reaches the bed, therefore, if the workman had his hand under the plunger the guard would knock it away before it could be crushed.

Mr. Garvie (*Halifax*).—This district shows forth a total of 579 accidents, or an average of 0·36 per factory per annum. I fear, however, that this comparative immunity cannot be altogether set down to this being a well-fenced textile district, but that the suggestion partly is that some factories have not reported their accidents.

Of the above 579 accidents 13 resulted fatally. Of these, two were badly reported before my arrival here; one was almost a death from natural causes; two due to misfortune; and other two to the fault of the injured person. I let the remaining six speak for themselves, as to

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whether these six lives would not be still here if only a moderate degree of common sense had been used to have simple apparatus available, and the respective machines properly constructed —in neither case in either instance at any great cost :—

Date. 1900.	Man's Age.	Accident.	Remedy.
January 4 ...	25	Smock caught round shaft while putting on a belt.	A belt-shipper.
„ 18 ...	54	Shifting a belt from fast pulley to loose pulley.	A belt-fork or belt shifter.
July 9	17	Sling gave way as crane hoisted piece of cloth out of door.	Proper slings, decently made.
August 24 ...	15	While holding belt to be spliced it lapped round shaft and took him up.	A belt-hanger.
September 11	50	Getting out on to roof and fell over edge at stair head.	A proper gangway.
December 20	17	Wood flew from front of circular saw, cutting a rabbeth.	A proper guard, or even a simple stick (a "pusher-stick").

Eliminate all doubtful cases, all due to want of care or foresight, to misadventure, and so on, still very many—far too many—remain which are preventible, *e.g.*, the six fatal cases cited above. The cause and the remedy are clear. The provision of some comparatively simple, inexpensive apparatus or mechanism might doubtless have saved most of these lives, and would still tend to save. For, indeed, some of these remedies have not yet been provided ; in some cases nothing has been done, neither is any effective process at law readily available. There is no proper power of enforcement ready to be brought to bear for dealing with such cases as those fatalities cited on 9/7/00 and 11/9/00, and others, for here there were other ways of doing the work. Neither are they cases which an ordinary Bench would be likely to consider within the meaning of 1878, section 5 ; 1895, sections 2 and 4. It would seem that we require in 1878, section 5, after the word "factory," the words "or workshop" ; and in clause (3) of the same section, as amended by 1891, section 6, after the word "machinery," the words "or plant, gear, or of any apparatus or appliances." For why should there be power to prevent the use of dangerous machinery or unfenced mill gear, and yet no power to prevent the use of improper apparatus, or dangerous plant (other than machines) ?

Mr. John Law's annual report contains very interesting particulars of the accidents in the north, and showing a steady increase, but it must be remembered that gigantic strides in production have taken place in that part of the division. It is stated, for instance, that during the year ended 1900 the tonnage of vessels built on the Tyne alone was in excess of those built on the Clyde.

Mr. Law (*Newcastle*).—During the past year the Newcastle district is credited with the occurrence of 7,699 reportable accidents. Of this number 2,019 were reportable to the certifying surgeon, including 124 which resulted fatally.

The frequency and steady rise in the number of accidents is well shown by the following table : —

Month.	All Reportable Accidents.	Certifying Surgeon Accidents.	Fatal Accidents.	Other Accidents.
January	532	154	13	378
February	520	143	12	377
March...	696	204	18	492
April	572	152	9	420
May	683	144	6	539
June	528	158	7	370
July	628	143	8	485
August	603	161	9	442
September	771	219	9	552
October	711	177	10	534
November	743	192	9	551
December	712	172	14	540
TOTALS ...	7,699	2,019	124	5,680

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Perhaps the following classified returns of certain accidents (reportable both to H.M. Inspector and the certifying surgeon) which have happened during 1900 in this district of Newcastle will be interesting:—

	Class, &c., of Accident.	Fatal.	Non-fatal.
1.	Shunting and use of locomotives	20	134
2.	Hoists	3	15
3.	Bursting of emery wheels and grindstones	—	2
4.	Grindstone and rest accidents	—	36
5.	Cleaning in motion	—	57
6.	Lathes	—	134
7.	Power presses	—	187
8.	Explosions, or firing of escaping gas, oil, or like substance	2	65
9.	Drilling machines	—	49
10.	Shearing machines	—	125
11.	Steam engines, pumps, and gear of winches	3	51
12.	Circular saws	—	80
13.	Band saws	—	6
14.	Surface planers (wood)	—	29
	„ „ (iron)	—	21
15.	Escape or splashing of metal...	—	187
16.	Paper machines	—	18
17.	Crane hoisting and slings	7	218
18.	Platen machines	—	5
19.	Steam hammers	1	66
20.	Aërated water (bottles bursting)	—	12
21.	Gassing	4	10
22.	Lead poisoning cases	—	188

Lathes.—During the past year there have been 134 accidents from this source, many due to the ordinary driver and carrier catching some portion of the operatives' clothing. As I have reported before, it is impossible to dispense with this exceedingly simple and useful form of carrier and driver, and if security against accidental entanglement is to be ensured something must be done to protect these moving parts when in use. I am acquainted with one large firm of machine-makers having such an excellent contrivance on all the smaller lathes. It is simply a short cast-iron cylinder or drum, of radius about three-fourths or more of the distance from the lathe centre to the bed or slide-surface, combined with a screwed bolt at its lowest part, and held stationary by suitable nuts and clumps on the lathe slide. The drum surrounds the space traversed by the revolving carrier and driver, and can be adjusted in any direction required. Most of the work can be fixed in the lathe without moving the guard; this only being necessary in the case of face-lathes and exceptional jobs. The contrivance, I am told, has prevented many accidents, and is freely used by the workmen.

Articles of irregular shape or which are placed unsymmetrically in lathes present dangers which cannot very well be guarded against, as in one phase of a revolution some part of the article in the lathe will stand very far out from the centre, and at the opposite phase another part will be near the centre. I have not yet seen a reasonable guard, and consider one is not feasible except in those cases where one type of article only is manufactured.

Generally speaking, in this district change wheels and back-gears of lathes are well fenced.

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Power Presses.—The 187 accidents from various types of these machines in the Newcastle district are principally due to the use of rivet-hole punching machines in shipyards and boiler works. These machines are not guarded in the proper sense of the term, but are provided with strong iron claws or forks fixed about the punches to knock down the plates should they rise. In a sense these claws are guards, inasmuch as they are guides to the workmen indicating the area within which it is dangerous to allow any part of the hand to get. The men, however, are frequently injured between the claw and plate while holding or preparing to adjust the plates for a second punching operation a few inches away. As these machines are large and ponderous, doing very heavy work, it is scarcely possible to devise any guard. There must of necessity be sufficient room between the guard and the die or bed of the machine to insert the plate for punching. This clearance is all that is necessary for the worker to get his fingers in, and consequently the guard would be useless.

A brick press is a common source of accidents, and can be easily fenced, so that there is, with one exception referred to later, no excuse for their occurrence. The simplest form of guard consists of strong wire-work hinged on all four sides of the actual "stamper" and "die" with gaps slightly larger than the brick on the feeding and delivery sides. This guard prevents the brick under the stamper from being seized by the worker without deliberately lifting the guard, for which there is no necessity. If oil has to be fed on the die or brick it can easily be done by a spray through the guard, or other simple arrangement.

The brick as above made is sometimes transferred to a "name-stamping" press in which the feeding and removal are done by hand. Mechanical arrangements have been tried, but they were found to spoil the bricks and given up. To guard against accident the feeder has the machine under his own control by means of a hand-lever or treadle, and only one descent of the press can take place unless the machine is deliberately held in gear by the worker himself. Accidents, however, happen due to an attempt to re-adjust a brick irregularly placed, just as with tin-stamping presses. The only remedy possible is to substitute two hand-levers, one for each hand of the operative, both of which must be operated before the stamper can descend.

Tin-ware takes so many shapes and varies so considerably in size that guarding is rendered very costly and difficult. Nevertheless, in almost every case it is possible to fence the stampers. The lid-clinching press, where a previously-formed lid is fitted on a die and operated on by a second die to press the roughened edge to a smooth and completed edge, cannot well be fenced in its present condition. If, however, the dies are reversed and a proper channel cut in the bed down which the lids can be fed, the difficulty of providing a fence is immediately removed.

Use of Locomotives, &c.—20 fatal and 134 other accidents, more or less serious in character, have been caused with the use of locomotives and other moving railway plant. A large number of these have been due to the coupling or uncoupling of waggons—sometimes with the waggons at a standstill and an engine closing in upon them, and at other times when the waggons were known to be in motion. As to the causes or prevention of these accidents I am afraid I can add nothing new. I can, however, say that a coupling-stick cannot be used with every type of waggon one meets with in our large factories.

One type of waggon in common use in most steel works is a small bogie of great strength formed of massive blocks of timber, with the side-blocks extended at the front and back to form buffers. These buffers are square and bound at the ends by wrought-iron bands. The retaining parts of the bogie consist of steel rails laid longitudinally with the ends bent upwards, so that the bogie can hold a great number of "pigs" laid transversely. There is no combined drawbar and hook on these bogies—the coupling arrangement at each end being simply a massive chain with a hook on the end link. To couple two waggons together one has to seize the chain of one waggon with the left hand, shift the hook in the end link, reach with the right hand for the other chain and hook, and drop the latter in the end link of the first chain. This necessitates leaning over one or other set of buffers. One is not supposed to attempt this when the locomotive or bogies are in motion, but very frequently it is attempted all the same and accidents result. It is not possible to use a coupling-stick for this purpose as the buffers obstruct the sight, and the use of the stick generally.

With ordinary waggons I have found the usual type of railway coupling-stick in common use.

The provision of brakes on one side only of railway waggons is often the cause of serious accidents, and a frequent recommendation from coroner's juries is that brakes should be provided on both sides. Eventually I suppose this desirable end will be attained.

An examination of the returns for the past year shows a total of 124 fatal accidents. These have resulted principally in connection with the shipbuilding and iron industries generally. Without making out an actual return, I am of opinion the major portion have been caused in shipyards during the construction of vessels, and principally from falls or articles falling.

There were 42 deaths from workmen falling through open hatches, off gangways, and through ladders slipping, and 23 deaths due to articles such as ships' plates, planks, &c., falling on workers near or below.

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FIRE.

I learn from the reports received from H.M. Inspectors of factories in this division, that special attention has been given as to means of escape in case of fire, and that but few difficulties have been met with in carrying out the proposed alterations.

Mr. Prior (*Huddersfield*).—In that part of the district in which I have for fifteen years past been working, only 204 works are marked defective in our register. This shows that satisfactory progress has been made, and I may add that in many of the works marked defective, structural alterations have been made since our last visits in order to give additional means of escape from fire, but we have been unable as yet to revisit, inspect, and pronounce them satisfactory before amending the entries in our registers.

Mr. Seal (*Bradford*).—27 fires have occurred at factories and workshops, but no loss of life or injury to employés have occurred. Seven factories and workshops have been reported to the local authority as dangerous in case of fire, and in each instance notice has been served on the occupier, or the local authority has been notified as the case demanded, and the work of remedying the defect has either been completed, or is being carried out. It is very satisfactory to report that in each instance notified to the local authority in Bradford, visits have been paid by the Fire Committee, and the action taken by H.M. Inspector has been endorsed and verified.

Mr. Peacock (*Bradford*).—Additional means of escape in case of fire have been provided in both factories and workshops, one noteworthy instance being a building occupied by several tenants as tailors' workshops on the third and fourth floors above the ground, the owner has provided an additional full length staircase at the opposite end of the building to the old staircase and now either exit is available in case of emergency. At a corset factory where about a dozen people were employed on the fourth floor, the only approach to which was a narrow, winding, wooden staircase, a door has been made through a party wall on the top floor whereby the workpeople can reach another staircase leading to an adjoining street. In another instance where notice was served on the occupiers of three tailors' workshops to provide additional means of escape in case of fire, they were unable to persuade the owner to make any alteration and all left the premises, which have since been unoccupied. No difficulty has been experienced in any case reported to the local authorities, and the necessary alterations have been successfully carried out.

Mr. Garvie (*Halifax*).—There was only one fire of special interest in this locality. This case may be some service to some Inspectors as much opposition is frequently met with when one asks for a fire escape for a cotton-doubling mill, the occupier usually alleging that fire is highly improbable owing to things being so wet and damp. A large mill, ten windows long, by twelve wide, and five high with a sunk basement, substantially built of stone, and occupied by two (room-and-power) firms of cotton doublers, &c., had finished a day's work as usual at 5.30 p.m. on 17th July, 1900. Two warehousemen were still there at 6.30 p.m. when an alarm of fire was raised; just before 7 the roof fell in, at 7.15 the front wall collapsed. True, the staircase still stands, but we well ask who could have used it when it was the upcast chimney for such a hot fire! I saw then that same owner's adjoining mill had an outside escape, but, warned by other cases, I returned in a few weeks to put it to test. I went up six storeys and advanced to the window fronting escape platform, but found it was not hinged and could not be opened. It was glazed with very thick semi-transparent rolled glass, most difficult to break without a big hammer or axe, and even then horribly unsafe to climb through if, as would be, it were hurriedly broken, the scene can be readily imagined. Further, the wide stone staircase was partly blocked with heavy skips to under 20 inches in width. Of course the case was seriously commented on and immediately notified to the Sanitary Authority.

SANITATION.

I am glad to be able to say that there appears to be a desire on the part of the Local Authorities throughout this division to co-operate in every way that could be wished with H.M. Inspectors. Complaints made to Local Authorities as a rule receive early attention.

Mr. Peacock (*Bradford*).—Several references have been made to the Local Sanitary Authorities respecting factories and workshops where the closet accommodation has been inadequate or insanitary, with good results, and a large number of privy closets have been substituted by water closets.

At a wool-combing factory about which there had been a complaint of damp floors, I found the water troughs of the finishing boxes, through which the wool passes, were improperly constructed and allowed the water to leak on to the stone floor where the women were required to stand; the occupier caused the fault to be remedied, and at a later visit I found the floors quite dry.

The better ventilation and cooling of wool-combing sheds is an important subject that has occupied attention during the past year; several firms have placed more fans in their carding

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and combing rooms, exposed steam pipes have been covered with non-conducting material, and during the summer months the roofs and windows of most sheds were covered with lime-wash.

Improved conditions have also been effected in gassing-rooms of yarn-finishing factories by the provision of fans and in increased number of air inlets.

Mr. Seal (*Bradford*).—On the whole sanitary provisions have locally been found to be adequate and in fairly good condition. Seventy notices in all have been served on the Sanitary Authorities, but whereas an acknowledgment without results achieved was in some cases formally received, it is now arranged that replies in all cases are received stating what action has been taken, and that the defects have been, or are being remedied, and I am glad to report that I have the hearty and active co-operation of all such authorities with whom I have had communications. In some of the more remote parts of the district there was scope for improvement, and good results have followed on inspection, and I am very hopeful of continued improvements during the present year.

Mr. Garvie (*Halifax*).—Bakehouses has been a large matter, many of these were really dirty places, some abominably so, wholly or partly underground, badly lighted, and worse drained, having little or no ventilation, several of them had W.C.'s inside or immediately communicating with the bakehouse, many were directly connected with drains opening within the bakehouse.

Indeed, a special point occurs here; a certain county borough (as a property owner), has been referred back (to itself through workshop defaults) for a W.C in a bakehouse--for a want of privy accommodation in a workshop where both males and females were employed—the only closet in the house being reserved for the employer and his family, the workers having to go to certain public privies, where there was a charge for admission, and these only open at certain hours.

As I am very glad to know, a Committee has been appointed to enquire into the matter of ventilation. The methods sometimes used to obtain removal of dust, &c., by means of fans would be ludicrous were it not that the results of such ventilation may be most disastrous. I found quite recently in three factories, fans so placed that the people working in certain rooms could not avoid having the dust drawn up into their faces. The dust generated in each of these places was dangerous.

Commander Smith (*Sheffield*).—The appointment of a Departmental Committee to inquire into and report upon the question of ventilation in factories and workshops will be welcomed; for, perhaps no more difficult question presents itself to the Factory Inspector than how to decide as to methods of ventilation when practically no two authorities agree. Volumes of literature are thrust upon us, each authority stating that the other is wrong and that his particular view is right. Generally speaking, I would lay down as a first principle that the main object should be to secure pure air without draught; the general impression being that to open a window or to make a hole in the wall of the workroom is to ventilate it; whereas, such remedy is, in nine cases out of ten, a greater evil that the disease, for whilst impure air kills by inches, draught is very rapid in its consequences. When factory or workshop occupiers are asked to ventilate their rooms, in the majority of cases the answer is, "They (the workers) can open the windows if they like," but the occupier does not, when engaged in sedentary occupations in his office, sit with an open window, especially in winter. He knows what he would have to expect if he did. I say, therefore, that it should be made absolutely and abundantly clear that "window ventilation" *per se* is not ventilation within the meaning of the Factory Acts. On the other hand, we have to recognise the great difficulties that beset employers who provide ventilators of a recognised type, at considerable expense to themselves, and then go round to find (as H.M. Inspectors from time immemorial have found) that each and every ventilator has been stopped up with old rags, paper, &c. To exemplify such difficulties, I quote from a letter recently received by me. I required the occupier of a factory to provide ventilators in certain rooms where the atmosphere was considerably fouled by the products of combustion of gas jets used in the process of manufacture. In answer to my notice I received a communication in the following terms:—

> "If you consider it necessary, I will have ventilators put in the shops in question by inserting wire-grating and boxing same up, open at the top; but in both rooms the workpeople object and say they will stop up the same."

This is, of course, very reprehensible on the part of the workers, but the reason is not far to find. The systems adopted admit fresh air, but do not prevent draught. If any committee can help in this matter, they will render signal service.

Under the heading of "Ventilation" perhaps a few words may be added in regard to the withdrawal of noxious fumes and injurious dust by the use of mechanical fans. In this respect very great strides have been made in recent years. When, many years ago, I was making inquiries in connection with Dr. Dupré, with the view to framing Special Rules for certain explosives works, I noticed that fans were commonly placed in such a position that the noxious fumes and injurious dust were drawn right into the face of the workers. Rule 12 in the Special Rules for the manufacture of explosives in which di-nitro benzole is used provides that the suction shall be so arranged as to draw the fumes or dust away from, not

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across or over the face of, the workers. Mistakes in regard to this matter are, however, still common. A short time ago I saw a mechanical fan running in such a position that an explosive gas was drawn right across a furnace, with the result that there was an explosion, and the workman was seriously injured.

When recently officiating for Mr. Beaumont, at Leeds, my attention was called by Mr. Hine to the admirable methods adopted at the works of Messrs. Harding, Richardson, and Rhodes, hackle pin manufacturers, Globe Road, Leeds. Colonel Harding, one of the principals, has devoted much time to perfecting a system for carrying off dust in the process of hackle pin grinding. With a long and varied experience, I have no hesitation in saying that I have seldom seen anything more perfect, nor have I seen better, cleaner, or brighter workshops. Mr. Hine is reporting on this system; I therefore do not enter into details.

Mr. Law (*Newcastle*).—There is no doubt that dust of any sort generated during manufacturing processes can be removed in a satisfactory manner. What few remarks I have to make under this head relate to basic-slag, the dust of which is fairly well dealt with during the process of manufacture.

Basic-slag is entirely stored in bags for the purpose of transit, and whatever the nature of the woven material forming the bags may be, it is natural to expect that dust will be given off at every disturbance. Basic-slag does escape in considerable quantities in this way, subjecting those having charge of its removal from place to place to much risk. No doubt good and new bags will go a great way in reducing this danger, but I do not hesitate to say that success in dealing with this and other fine dust in transit will never be obtained by the use of woven bags alone. The bags may be pressed and glazed to make the interstice the less, but the results are not encouraging.

Dust will easily find a way out, especially if bags are filled by dropping into them two hundredweights at a time. At present manufacturers of basic-slag are using new bags of stronger and apparently coarser texture than formerly, but little, if any, abatement of the dust given off is observed. One large firm of dealers in this form of manure use two old bags forming a double bag when sending out material from their warehouse, and with excellent results. The escape of dust is reduced considerably in this manner as compared with a new bag.

If a bag could be made practically impervious to the escape of dust by immersion in some matter which would not destroy its flexible properties or materially increase its weight, then the problem would be completely solved. I have not heard of any attempt in this direction, but it seems to me that it might be done.

I am acquainted with a (patent) system of treating basic-slag with a lime solution containing salts of sodium and potassium in varying quantities depending on the soil to be treated. It not only increases the value of the slag as a manure, at very little extra cost, but at the same time does valuable service to the farm labourers scattering it on the land, inasmuch as they are free from dust. The farmer also gains, as the lighter and more valuable dust is not scattered by the wind, which is always more or less the case with the untreated slag. Operated upon in this way, it will keep in a moist condition from three to six weeks and longer, but cakes before a second season can come round. When caked, however, it is very easily ground up again without any loss of its properties, and experiments prove that when reground the dust is a falling dust, and not like the untreated slag-dust a rising one. A fragment of the caked slag put on the soil will fall to pieces in very little time. If, as I am informed, this operation is a success, it would be quite possible for the slag to be sent out in this form from the works direct, and whether it remained moist or became dry dust would not be given off.

In any case, some of those firms throwing their finer dust outside the buildings forming their factories might adopt, with gain to themselves, this system, so far as the supply of local wants may be concerned.

DANGEROUS TRADES.

Mr. Hine refers in some detail to the works under Special Rules in the Leeds district:—

White Lead.—The one factory under there rules has been undergoing great structural alterations for some time past, and, although still further improvements in the way of lavatories and clothes cupboards are now going on, the rules are being satisfactorily carried out. The reports of lead poisoning have been few, but unfortunately the want of cleanliness is still very marked among some of the workpeople, and many do not seem to appreciate the risk they run in contracting plumbism. I have recently been investigating a case where the well-intentioned advice of an old hand, that it was unwise and contrary to the rules to eat oranges and put tobacco in the mouth with fingers smeared with white lead, was only met by abuse from the offending party, who eventually suffered for his folly by an attack of lead poisoning.

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Red and Orange Lead.—These are manufactured in the same factory as the white lead, and until recently the two processes have been somewhat intermixed. A new building has now been erected for the red and orange lead, and the machinery will soon be ready for starting. When finished this will form a very compact and well arranged department.

Paints and Colours.—There are a considerable number of these works in my district, especially in Hull, but very few cases have been reported of lead poisoning. Two or three paint and varnish works are situate in Ripon, from which I have never heard of a case of plumbism. I cannot speak too highly of these factories. They are kept scrupulously clean, especially one of them, in which not only the required lavatory accommodation is provided but a most elaborate bath, with shower, douche, and other arrangements. These throw many other paint factories very much in the shade, and I regret to say the want of *good* washing convenience, is great. In my opinion the words in the rules are too indefinite. Washing conveniences are sometimes only buckets, tin basins, or tubs, but seldom proper lavatories with waste pipe and water laid on. I am glad, however, to report that I have noticed an improvement this year in that respect, and hope by perseverance others may follow the example set by one or two firms. The sanitary drink is not partaken of as frequently as it ought to be, especially in cold weather.

Lucifer Match Works.—At the beginning of 1900 I had two match factories, but by the alteration of the districts a third was added. One of these has now been closed rather than make the necessary alterations required by the new Special Rules; another is about to close shortly, when existing contracts are completed, for the same reason. The third is an old-established firm in a country village, and here they have seriously considered whether they shall close altogether or make such alterations as will bring the factory into conformity with the Special Rules. It has, however, been decided to manufacture single thoroughly-dry matches instead of the old double-dipped ones, and arrangements are now in hand for that purpose, which I hope will soon be complete.

Brass Mixing and Casting.—My register shows as many as 82 places under these rules, but the majority are in connection with iron foundries and engineering works, in many of which a corner of the iron foundry is used for the purpose, and brass is cast on rare occasions, often not even once in a week. The places solely used as brass foundries are generally well constructed. I am afraid that tin basins are not made as much use of as they might be, and very often a man will prefer to wash in a tank, which is used for cooling tongs, castings, &c., rather than the basin. I have never had any complaints nor heard of any cases of injury to health in a brass foundry.

Aërated Waters.—The number of factories under these rules greatly exceeds that of any other class of Special Rule factories, and from my experience these rules are the most difficult to enforce. Visit after visit may be paid, and no bottling, wiring, &c., will be going on. The rules are most easily complied with by the occupier so far as obtaining the necessary safeguards is concerned, but they do not always give sufficient thought towards providing the most suitable guards. Nor do many of them take enough pains to see that they are worn. It is far too common a practice with the men to disregard the use of masks, gauntlets, &c., when they should be worn. I have obtained convictions against workpeople from two factories for not wearing masks, and recommended proceedings in another case against a foreman, who was bottling without a mask after a previous caution from me, but proceedings were not taken. His employer discharged him in consequence of my complaint.

Mr. Seal (*Bradford*).—The most important development under Special Rules during the past twelve months has been the passing and applying of Special Rules for wool-combing, which has resulted in bringing a number of important works, dealing in and manipulating dangerous wools, and which had hitherto been exempt from special legislation under more stringent regulations. This step will, perhaps, appear the more important when I mention that one of the factories thus brought within their scope has been responsible during the past year for no fewer than four cases, two of which proved fatal. There is one very gratifying feature in connection with the drawing up and approval of these rules, which I should like to place upon record, because it is perhaps unique in the history of such proposed legislation, viz., the practical unanimity, fine spirit, and goodwill exhibited by the representatives of both employers and employed in their desire to make the rules effectual. When the final meeting took place and the amended proposals submitted by Mr. Beaumont and Mr. Osborn were laid before them, the question of expense which would be involved in carrying out the suggested mechanical and other improvements never intervened, the sole animating desire seemed to be to obtain the best possible results with the least friction. It is too early yet to estimate the benefits of this important addition to the statute, but if the results bear a corresponding value to those achieved by the wool-sorting rules, the effect, I doubt not, will be very gratifying to all those who helped to sow the seeds of their existence, as well as to those for whose benefit they are devised, who ought to reap a goodly harvest of health from their administration.

I have pleasure in reporting that on the whole the special regulations have been well carried out. Manufacturers, recognising their value and importance, show a ready acquiescence in complying with the rules, and are invariably willing, irrespective of cost, to adopt suggestions for improvements. One firm has this year completed an improved system of ventilation for sorting and opening boards at a cost of over £1,000. The lavatory accommodation has also generally developed, whilst the settling of the dust in dust chambers by means of an automatic water spray is a great improvement, and I should very much like to see this system extended and in

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general use. Very few complaints have been received respecting infringements, a proof, I take it, either that the rules are well observed, or that the workers are indifferent to their own health and well-being—it is to be hoped the former is the more correct solution. In some instances I have observed the workers are not too ready to avail themselves properly of the washing arrangements provided, nor to open windows at meal times, whilst it is no uncommon thing to see them leave the works at meal hours without troubling to change their overalls. Prosecutions have been taken in three instances, with a conviction and penalty in each case.

I am glad to note that there have been fewer cases of anthrax reported in 1900 than in previous years. It is said that nearly every case has resulted at the later—not the earlier processes. It may be that the warmth of the wash-bowl has something to do with this.

During the year only seven cases of anthrax have occurred, two proving fatal, whilst four of the remaining five patients have now all recovered and resumed employment. This list, notwithstanding the increase of works, under woolsorting rules, from 31 to 43 owing to reconstruction of district, is distinctly encouraging as compared with 4 fatal and 10 non-fatal cases during the preceding 12 months, especially in view of the fact that one firm is responsible for the 2 fatal cases and 2 non-fatal ones. The fatalities were the result of the only two internal cases reported.

I enclose a tabulated report, giving particulars of each case, from which it will be seen that nearly every case has apparently resulted from employment at a later stage of treating the wool. Taking the process in order of treatment as follows the results show (*a*) opening, none; (*b*) sorting, one; (*c*) washing, none; (*d*) drying, none; (*e*) carding, four; (*f*) preparing, two; (*g*) combing, none; (*h*) finishing, none—Total 7. It has been a subject of comment and surprise that whilst the earlier and dustier processes have escaped with comparative immunity, the later and less dusty departments have provided the majority of cases, and I have sought for a solution of this fact from persons of long experience and knowledge, but without success. My own opinion is that this may probably be due either to the ineffectual cleansing of the raw material, or that certain bacilli remain concealed in the wool, which does not become thoroughly disinfected until the later stages of treatment, and that the stronger of these bacilli survive the washing process, as the water is not heated to boiling point, whilst at the carding and later processes, owing to the finely shredded condition of the wool, these surviving bacilli get their first real opportunity of escaping. According to the axiom of the survival of the fittest, these being the strongest are possibly the most deadly. That the improved system of working in strict accordance with the special rules results very beneficially has been amply verified during the past year by the fact that one firm, which had become to some extent notorious for its anthrax cases, has, owing apparently to having removed to a new factory, and working under a system of better ventilation and more cleanly conditions, not had a single case to report. The increased facilities for more prompt local examination of suspected bacilli are a distinct gain.

I have visited all the White Lead Works in this division, most of them more than once. What strikes me most is the dilapidated condition into which some have been allowed to fall. I was told at one works that the flooring would not bear the weight of concrete if put upon it. Whether this state of collapse is partly due to the work carried on I am unable to say, but in any case a regular overhauling would prevent the present appearance of some of these works.

Speaking of concrete there can be no doubt that it is the best flooring for White Lead Works, and should be bevelled towards the centre, with a channel up the middle, and holes pierced at intervals for the water to get away readily.

It seems to me that the two great preventives of lead poisoning in a serious degree, are cleanliness of person and plenty of water in all parts where dust arises. Good floorings are essential, and in this particular there is much room for improvement. I saw at one factory what remained of a lead floor covering, it was all in holes, and wherever any movement took place dust arose. The floorings are often too springy.

There are certain peculiarities about employment in white lead, which I do not think exist in any other work. The men employed in certain operations may have finished at

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ten or eleven in the morning, or noon, for the day, then, with little money, and perhaps, less appetite for food, what so natural as to get some drink, probably on an empty stomach.

I saw an excellent packing arrangement for packing dry lead, made by Dell & Co., Mile Buildings, Martin's Lane, E.C. It is like the American flour packer, only stronger, not costly, and does its work well, and no dust arises from the operation.

There is no respirator so good, I think, as a sheet of cotton wool about a foot square doubled ; when done with it is thrown away and another supplied.

It is very needful that both the hair and the finger-nails should be kept cut short.

The work of alteration of premises, stoves, &c., which is without doubt a great undertaking, is now going on well, and the work appears to be of a character to last.

I saw the chamber system of drying, *i.e.*, where the dishes are placed on a bogey run on metals into a stove, and taken out at the other end, where there is a turnstile ; the bogey is then sent on another line to the shoot, where by a contrivance (model of which you have) the lead is sent either direct to the packer through a funnel or elsewhere, and, I think, no dust can arise.

It is thought by most experienced men in the white lead trade, that the great trouble as to lead poisoning occurs in the drying stoves, so that we may gladly accept any system which helps to shorten or prevent labour inside the stoves, and if, as is hoped, the drying can be effectually done by running bogies laden with dishes containing the lead into stoves, and when dry taking them out at the other end on rails, it will be a very great stride in the direction of abolishing lead poisoning.

Mr. Law (*Newcastle*).—My short experience in this district satisfies me that most of the cases of lead poisoning can be prevented by proper selection of the workers. One firm, paying good wages, and employing men attached to the district, and therefore likely to be permanent workers, are practically free from cases of poisoning serious enough to necessitate reporting. Another in the same district, for reasons I cannot explain, employ a class of wanderers, living in low lodging houses, who seek employment only when necessity forces, often indulging too much in alcoholic stimulants, and neglecting proper food. It is small wonder then there are so many cases of poisoning amongst this class.

The seven white lead works in this district have reported between them during 1900, 188 clear cases of lead poisoning.

Overalls.—The various Special Rules under the Factory Acts which require the provision, &c., of overalls, do not fix any standard of suitability, and naturally it is to be expected that different practices will obtain in different districts, and even in the same district. I am of the same opinion as mechanics and boiler attendants, namely, that an overall suit should cover every part of the clothing usually worn when at work. To secure this end thoroughly, the overalls must necessarily partake of the shape or form of the ordinary clothing. For instance, the mechanic considers overalls to consist of a tight jacket fitting well on the neck, and having full length sleeves, with a pair of trousers reaching to the feet. The boiler attendant prefers a suit forming a head covering, body covering, and trousers made in one garment, and fastened with strings or buttons at the front. Both these types for male wear are excellent, and may be taken to satisfy reasonable requirements. For female wear a smock reaching to the feet, fitting well to the neck, and with long sleeves seems necessary.

In earthenware and china works one finds males and females wearing smocks which only reach to the knees, and often not fitting well to the shape of the neck and shoulders of the wearer. The provision of this type, to my mind, is not a reasonable interpretation of the requirements. I have on several occasions suggested improvements on this type, and have been met by statements that this style of overall covering is the usual one in other districts, and considered satisfactory there. They also add that the garments have been purchased at extra cost from the principal seat of the industry with the sole purpose of obtaining the form officially recognised.

The express purpose of an overall is to cover the whole ordinary clothing, so that dangerous dusty matter arising during the process of manufacture may not be carried home by the workers in their clothing. The short smock cannot be said to suit this standard, even in earthenware works. I quote the following instance as showing that with men the smock is plainly unsatisfactory. At a white lead works some of the workers engaged in wheeling corrosions from the white beds to the rollers were wearing smocks reaching to about the knees. Frequently they had occasion to stoop, and when they did so the front of the smocks touched

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the floors, which are designedly kept as wet as possible to prevent the rise of white lead dust by vibration or other disturbing cause. The result may be anticipated—on rising, the wet came against the trousers, making working unpleasant, if nothing else. A small quantity of white lead in a wet state would also be carried on the trousers, and as these would not be dry until the operatives had left the works, the white lead was carried away, and probably given off as dust by the later movements of the wearers. I may say that these smocks have since been given up for jackets and trousers, much to the workmen's satisfaction.

The occupier of one works in this district says he cannot expect his workmen to obtain their own overalls, considering the small wages earned, and as an incentive to carry out the regulations he provides everything necessary without cost to the workers.

Head Coverings.—I find the observance of Special Rules in this respect very lax indeed. In one or two cases head coverings have not been provided at all, and in most instances partial provision only has been made. The employer justly complains that the workers will not wear them as they ought to do. The coverings are left hanging down the back where sewn on the jacket or smock, or put in the pocket, or anywhere, until the foreman or inspector is seen to be coming along. For various reasons the employer is often unable to deal with these workers, inasmuch as he has, in the first place, a decided objection to the fining system, and in the second place, owing to the scarcity of workers, he dare not dismiss the offenders. Again, the small wages that competition and restriction permits, especially in the common earthenware trade, does not tempt the workers to stay on amidst the many imposed and irksome conditions.

Glost placers, who have frequently to carry, more or less, heavy "saggers" on the head, complain of the common form of head covering, because no pad is provided therewith as a cushion. They are very often found wearing cloth caps provided by themselves, and which, in some cases, are the ones they wear when proceeding to and from their homes.

File-cutting by Hand.—Commander Smith so ably puts the particulars of the evil effects of this trade upon many of the workers and the conditions under which they work, that I have very little to add, except to say that I have visited with him in places where the outside surroundings of the file-cutting shops have been filthy, and I have seen among the workers most sad spectacles, produced, without doubt, by their unhealthy occupation.

Commander Smith (Sheffield).—So much has been said and written on this subject that little remains to be said. The Report of the Dangerous Trades Committee brought out in detail the dangers to health incurred by workers in this trade. Opinions from members of repute and distinction in the medical profession were quoted, some going back as far as 1865. The Medical Inspector has since reported that "in no employment where lead is used do the symptoms suggest such incapacitating illness as in file-cutting." The Medical Officer of Health for Sheffield (Dr. Robertson), in his Annual Report for 1899, says: "The trade, as carried on in the workshops of Sheffield, is about as unwholesome as it is possible to imagine. Enquiry is being made into the sanitary conditions of all the file-cutting workshops in the city, with a view to collecting data for an especial report, but it may be said that of the total number not more than a dozen or two are workshops which, from a sanitary point of view, are kept in a reasonably wholesome condition." Written representations have been forwarded by the Town Clerk of the City of Sheffield to the Home Office, with the object of securing legislation for the protection of inmates in dwelling-houses where this dangerous occupation is carried on. I understand from Dr. Robertson, that he is not only making a most careful inspection of the file-cutting workshops, but that he is having a careful analysis made of the air, and also of the dust, found in those places. From this it will be seen that something is being done. Already, good results are beginning to show themselves, owing to Dr. Robertson's energetic action. A local Workshop Inspector has been appointed, and has devoted much time to securing cleanliness and the prevention of overcrowding; but Dr. Robertson in his report states that the whole question of file-cutting is one "which cannot be efficiently dealt with without further legislation." The lines on which legislation might be based are found in the Report of the Dangerous Trades Committee, but it will be remembered that these recommendations met with local opposition, and that one of the opponents was the Secretary to the Operative File-cutters' Association, who, doubtless, represented the views of a large section of workers in his trade. The difficulties in the way of legislation, owing to the very peculiar and exceptional conditions under which the work is carried on, are very great. I will not again enter into these, but simply express a general opinion that they are not of a nature presenting insuperable obstacles, were a local genuine effort made to remove a recognised source of danger, which, although of long-standing, must still appeal to the sympathy of fair-minded men in Sheffield. It may be that a conference might elicit methods not before suggested, or that those already offered might to some extent be modified.

On October 31st, 1900, I sent you certain statistics prepared by Mr. Morris, the Inspectors' Assistant in this district. I explained that, for reasons given, these had to some extent been based upon an estimate. Since that report, Mr. Morris's inquiries have been carefully followed up, and it may be taken that the figures now given are practically correct.

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There are in Sheffield and surrounding villages 560 workshops in which file-cutting by hand is carried on.

In these workshops 1,905 persons work, 1,200 being men, 440 women, and 265 young persons.

During the last three months Mr. Morris has paid visits to 228 private dwelling-houses in which file-cutting by hand is done, and some remain to be visited. Probably the total number of such dwelling-houses will reach 300. In these domestic workshops 255 persons are known to be employed, two being men, 245 women, and eight young persons. In 198 of the houses one person only (generally a woman) worked. In 19 cases two or more adult members of the family worked. In eight two or more members of the family worked, one being under 18 years of age. In three the occupier employs a person not a member of the family.

It must be remembered in speaking of hand file-cutting workshops in Sheffield that many are not workshops over which we have any legal control, as men only are employed. In others men, women, and young persons are employed. In some of these there are occupiers who employ other persons, and here we can exercise our powers; but in others men, women, and young persons work, renting a "stock," thus becoming separate occupiers and their own employers. Over these people we have no jurisdiction. It may be that in the same workshop we could prosecute an employer for allowing women or young persons to work after legal hours, while in the same shop other women or young persons, who go through the form of renting a stock and securing work from outside, can work all night if they so desire.

My report hitherto has referred solely to workshops, but we know of 32 factories in Sheffield in which file-cutting by hand is carried on. In these factories there are employed in this work 189 men, five women, and eight young persons.

It will, therefore, be seen that the total number of persons now employed in this industry in Sheffield amounts to 2,362, comprised as follows :—

——	Men.	Women.	Young Persons.
Employed in workshops...	1,200	440	265
Do. do. factories	19 170	5	8
Do. do. houses	2	245	8
	1,372 19	690	281
	1,391		

It may be of interest at this time to recall some of the points in the evidence given by Mr. Stuart Uttley, Secretary of the Hand File-cutters' Association, before the Labour Commission on March 25th, 1892. Referring to the organization that he represents, he says:—

"I may say that our society is a very old society; it was established in 1784 in the first instance. I know there are some societies that claim to be the oldest, but we have records to prove it to have been established at that period. The number of persons employed at the present time are: Men, about 1,700; women and girls, 503; and boys, 300; making the total about 2,500. Referring back, for the purpose of this inquiry, I find that in 1866 there were about 2,700 men, about 1,000 boys, and about 600 females employed, that gives a total of about 4,300, so that there has been a decrease, chiefly in men and boys, in the file-cutting branch (I am speaking now of only file-cutting) of something like 1,800 persons."

Mr. Uttley further stated, with reference to the employment of girls, that there were cases in which "sweaters" could employ some half-dozen girls, and "sweat" them for their own

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purpose, and still evade prosecution by methods best known to themselves. He could tell the Commission in private, but would not care to say publicly, how this was done. One way, however, was for the girls to become personal occupiers. The latter remark, I may say, applies to-day with the same force as when this evidence was given.

I recently wrote to Mr. Utley informing him that I intend to quote from his evidence, and asking him if the figures as stated by me were correct. He replied :—

"The figures given were compiled as carefully as it was possible for me to do without a personal visitation of the workshops, and may be taken as substantially correct. Of course the decrease includes boys.

"I may mention that at the present time there are a considerable number who simply use the trade as a kind of supplement to other employment, working odd days and in the evenings, and I suppose in a general census would be counted."

Thus, according to Mr. Utley's evidence, there were, in 1892, 2,500 persons employed in the trade, as against 2,362 known to be so employed to-day, with probably 100 more who have escaped observation. It will, therefore, be seen that, notwithstanding the large amount of machinery used for cutting files, there has been no appreciable diminution since 1892, in the number of workers engaged in the file-cutting industry.

Between July, 1898, and the date of this report, 100 cases of plumbism amongst file-cutters have been reported to this office. The Medical Inspector (Dr. Legge), since his appointment, has carefully considered the reports from the local certifying surgeons relating to these cases, and his opinions from a medical point of view will doubtless be of great value. The pamphlet prepared by him, entitled "Lead Poisoning, how Caused, and how best Prevented," has been extensively circulated amongst the file-cutters in Sheffield, and will (I hope) bring home to them the necessity for exercising the clear instructions given.

For some time experiments have been going on in large works situated in the Midlands, with a view to seeing whether an efficient and cheap substitute for the lead used as a "bed" on which to cut files can be found. I have, from time to time, made enquiry as to whether any conclusion have been arrived at. The answers have been to the effect that the experiments are still going on, but that the firm are not yet prepared to state the results. Should the desired substitute be found the greatest of our difficulties in regard to the file-cutting industries will have disappeared.

Mr. Seal (*Bradford*).—Only one instance has come to my notice involving danger to employment, which has not hitherto, so far as I am aware, received official recognition, viz., the process of lead burning for maintaining the current in connection with electrical accumulators. Tanks or baths are used about 2 ft. 6 ins. long and 1 ft. 3 ins. wide, which are made of lead and filled with distilled water and sulphuric acid, into which the leaden battery plates are placed vertically, the acid acting on them and causing decomposition. The inhalation of the fumes given off, though somewhat trying, is not, so I understand, injurious, although when the tanks are cleaned out its trying nature is naturally increased. But when the plates require replacing the ends of the old ones have to be burnt on to the new ones to maintain the current, and it is in the fumes then given off that the danger of lead poisoning is created. These plates, however, only require renewing about every two years, but the work, I am told, is distinctly dangerous at such times, and is not carried on continuously for more than two or three days in order to minimise the risk.

Commander Smith (*Sheffield*).—There are 155 tenement factories in Sheffield, the number of tenants varying from 3,000 to 3,300. These are "first tenants" who pay rent to the collector, but many of them again sub-let portions of the grinding-wheel (or "sides" in cutlery shops). Most of these structures are old and in a dilapidated condition. No legislation could make them satisfactory work-places according to modern ideas; but, nevertheless, the powers granted by section 24 of the Act of 1895 have produced valuable results. It is now possible to enforce the provision of sufficient and suitable sanitary conveniences for both sexes. These are now provided universally, which certainly was not the case before. The power to fix responsibility upon someone has enabled us to secure (to a large extent) cleanliness and periodical limewashing; and whereas formerly it was impossible to hold any person legally responsible for unfenced mill-gearing and machinery, now no such difficulty exists, and our efforts in regard to securing safety for the workers have been more encouraging. The "fans" used by dry-grinders are generally the property of the grinder, and taken by him from place to place. Before the passing of the Act of 1895, it was common for a grinder to possess a fan, but to find no pipe for carrying off the dust, or contrivances necessary for running the fan. A weekly tenant naturally objected to provide fixtures of this sort. These, owing to wise legislation, are now provided by the owner, and fans are universally in use, much to the benefit of the workers.

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Mr. Law furnishes an analysis of the outworkers' lists received in the Newcastle district :—

Occupation, &c.	No. of Firms concerned.	No. of Workers concerned.	No. of Contractors concerned.
Tailoring	42	110	7
Hats and Caps	1	2	—
Millinery, Dress, and Bonnets	1	—	1
Aprons, &c.	—	—	—
Shirts and Underclothing	14	42	—
Glove-making	—	—	—
Boots	28	40	5
Hosiery and other articles of Clothing ...	6	12	—
Fur-pulling	1	5	—
Cabinet-making, &c.	2	7	—
File-making	1	2	—
Totals	—	220	13

Only six firms supplied the information required by the Act voluntarily—the remainder had to be written to.

Mr. Seal (*Bradford*) reports with reference to ordinary overtime :—

This being essentially a textile district, overtime is practically limited to the making up of any article of wearing apparel, and although visits have been paid after hours, on two nights in each week during the past year, infringements, I am pleased to report, have been very rare, and invariably of only a technical nature.

And adds, with reference to War Office Contracts :—

Owing to unforseen demands for certain textile materials produced in this district, resulting apparently from unexpected developments connected with the war in South Africa, several mills were compelled to work protected hands overtime to complete urgent Government orders. Altogether, before reconstruction of district 25, and afterwards 8 firms so availed themselves, but of these several only worked a few nights, others only employed a few protected hands, and at no time were more than 100 women and 10 young persons employed beyond the ordinary legal period. All these firms were at once visited, and instructed in accordance with the conditions named by H.M. Chief Inspector of Factories, and continued to be so visited and reported on at least once a month, until an intimation was officially conveyed that all such employment must draw to a close, the emergency period being passed, and on November 1st it had ceased altogether. My experience of that period was that such employment was looked upon, to a great extent, with disfavour both by employers and employed, and it was only the apparent absolute necessity that reconciled them to its existence.

Although under exceptional circumstances of national emergency, special latitude had to be allowed to certain manufacturers having urgent War Office contracts, it reflects greatly to the credit of the contractors that in no case did any serious abuse come to light, nor was any attempt made to take undue advantage of the concession. I should add that in this North-Eastern Division the number of manufacturers engaged on Army contracts was very large.

TRUCK.

Mr. Seal (*Bradford*).—No serious infringement of the Truck Acts has come to my knowledge and wherever the posting of contracts and keeping of registers have been ordered, the regulations have been promptly complied with. One verbal complaint only was received in respect of a slight grievance, which was promptly investigated and remedied.

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Mr. Garvie (*Halifax*).—Among the better class of works one would think such provisions would have little effect, but indeed they have, for very many masters, sooner than publish a notice relating to fines, have quite abolished fines. However, among a certain class there is a continual cribbing and fining going on. I have noticed much of it among weavers especially. I am informed that a case taken here last June, has done much good in the trade. Here it was admitted that the Act might apply if the master had kept back say 1*s.*, but as he never paid one penny of the girl's fortnight's wages, the defence was, that there was no deduction made, and consequently the Act did not apply; however, this defence was weakened because the master had offered the weaver the spoilt or damaged piece, and to debit her with the cost of it, only he had kept both piece and wages. Conviction was obtained.

PROSECUTIONS.

As regards prosecutions, *Mr. Seal* reports that in the Bradford district:—

Thirty-six cases in all have been taken, and although the penalties in some instances have not been as great as the offences apparently demanded, it is very gratifying to be able to record that convictions and penalties have been obtained in every case. Perhaps the most interesting was one taken under sub-section 2, section 10 of the 1895 Act for allowing two female young persons to remain in a room of a factory for the purpose of meals, the doors of which rooms were not locked in such a manner that they could be easily and immediately opened from the inside. A fortnight previously I found some male young persons similarly confined in the same room, and although I warned the over-looker and manager, and wrote a letter of caution to the occupier thereon, I found on revisiting, a repetition of the offence respecting the females aforesaid. The penalty inflicted was not a heavy one, particularly considering the aggravating circumstances connected with it (the place being reported by me to the local authority as dangerous in case of fire), but the magistrates probably took into consideration that this was the first offence taken under this section in this locality. I ought also to add that on each occasion I found the room locked from the outside, the over-looker had taken the key home with him, so that there was no means of exit until he returned.

EMPLOYMENT OF CHILDREN.

Mr. Seal (*Bradford*).—The raising of the age to 12 for half-time employment by what is known as Robson's Act, which came into force January 1st, 1900, notwithstanding its compensating privilege of proving due attendances has materially clipped the wings of such employment, which shows almost without exception continued diminution. This Act, together with the further raising of the requirements of due attendances to 350 for full-time employment, have involved the exercise of much preseverance in making these important changes generally known, and also patience in discriminating between offences of omission and commission respecting their infringement. The result, happily, has been achieved without much friction, and I have not found it necessary to proceed against parents in a single case. I am glad also to report that there has been complete harmony in the workings of this department with the various School Board authorities, who have at all times worked loyally and well with me in securing a proper and legal administration of these changes in respect to questions affecting employment. There has been, however, one case of altering figures of an attendance certificate to bring the numbers up to the required standard, in which a girl at her mother's command made the alterations referred to. Both denied the offence at first, but the daughter ultimately admitted it. But a prosecution of the mother would have required the appearance of her daughter as witness her, whilst a prosecution of the daughter would have seemed hard in view of the mother's instigation.

The supervision of theatrical licences for children is perhaps the least satisfactory of the duties devolving upon Inspectors of Factories. On this subject I speak feelingly, having had many wasted journeys. On one occasion I was three parts of a day in search of a child at a cost of 17*s.* I refer again to this question because I feel strongly that by a transference of duties from the Factory Department to Local Authorities much valuable public time and money might be saved. A child-member of a theatrical company starts, we will say, from London. She performs for a week in Bedford, then in Nottingham, Sheffield, Manchester, Liverpool, Bristol, Plymouth, and so on. At each place the licence is taken out, and at each place she has to be visited by the local Inspector of Factories. In many instances, she may perform at places removed from his centre, and it becomes necessary to travel many miles, to sleep away from home, and to incur heavy expense, for, generally speaking, no useful result. In some cases, absolutely no conditions are imposed; in which case an Inspector has by law no legal duty to perform, and it is quite open to doubt whether (when no restrictions or conditions are imposed) he has any legal right whatever of entry into the theatre. In other cases the only condition imposed is, that the child shall leave the theatre, say, at 11 o'clock,—the time for closing. It is not unusual

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to find an Inspector called upon to travel to three or four towns, in three or four consecutive weeks, to follow the same child to different towns in his district. The expense incurred in looking after any particular child playing in any given play during one year, would, if calculated, be found to be considerable. All this for the benefit of one favoured child, generally well-cared for, well looked after, and travelling with its parents ; whilst, outside the theatre, are found hungry, starving, ill-clad children, in the streets in all weathers till late hours at night under the pretext of selling papers or matches, but no power steps in for their protection. The time spent by Inspectors of Factories in this work means that other important duties must be neglected, and this at a time when it is almost impossible to perform the many duties that fall to our lot.

Section 3, paragraph 4, of the Prevention of Cruelty to Children Act, 1894, requires that the person taking out the licence shall cause a copy thereof to be sent to the Inspector of Factories for the district in which the licence is to take effect. The person taking out the licence rarely does this, and, although a penalty not exceeding £5 is named, there is nothing said as to who the prosecuting authority should be. This section further lays down that the notice sent by the person taking out the licence shall be sent in not less than ten days after the granting of the licence. In nearly all cases travelling companies perform for a week only in one town. If a licence is sent ten days after the granting, it will be received after the child has left the district.

I have, &c.,

W. BEAUMONT,

H.M. Superintending Inspector of Factories.

H.M. Chief Inspector of Factories.

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NORTH-WESTERN DIVISION.

REPORT OF THE SUPERINTENDING INSPECTOR.

March 31*st*, 1901.

SIR,

IN accordance with your instructions I have the honour of forwarding to you the subjoined Report upon the work carried on in the above division during the year 1900.

The North-Western Division which embraces the four counties of Cheshire, Cumberland, Lancashire, and Westmoreland was only formed on May 1st, 1900; consequently any comparison of many interesting statistics as to accidents, &c., which will in future be available, cannot yet be made with past years.

Returns for last year show that there were over 37,000 factories and workshops, about equally divided, entered on the various registers throughout the Division; whilst the staff to cope with the large amount of work entailed by these consisted of 15 Inspectors, three Inspectors' Assistants, one Clerk Assistant, and six Clerks. The grouping of the Offices for the Manchester, Oldham, Bolton, Rochdale, and Stockport Districts at the Central Offices in Manchester has, I consider, been on the whole successful. It has greatly facilitated communication between myself and the District Inspectors.

I am largely indebted to the members of the staff for a mass of useful information which has reached me through their reports, evidence of which will be found below. I have also to acknowledge the receipt of a number of photographs, &c., of guards, more especially from Mr. Crabtree.

State of Trade.—*Mr. Sydney Smith (Peripatetic Inspector)*, who has acted during the year in the *Manchester*, *Bolton Rochdale*, *Preston*, and *Newcastle districts*, reports:—

> Trade on the whole has been good, though at one time owing to shortage of raw cotton many cotton mills and weaving sheds were obliged to stop for several weeks. At the commencement of the year owing to the requirements of the troops at the front in South Africa numerous firms were employed to their utmost capacity on Admiralty and War Office contracts. As the restrictions regulating overtime were somewhat relaxed for those firms engaged on *bonâ fide* contracts, a considerable amount of time was taken up in visiting these factories at frequent intervals to prevent irregularities; this was more especially the case with flannel manufacturers. It is instructive to note that recently several of these firms have informed me that the overtime did not pay. One firm in particular even assured me that they got less work out of their employees notwithstanding all the overtime, and that however busy or pressed for work they might be in future they would not avail themselves of the privilege even if it were granted.

Mr. Crabtree (*Oldham*) says—

> The year 1900 has so far as cotton spinning is concerned in this district been one of unprecedented profit making; dividends have been declared from 2½ to 40 per cent. on paid-up capital.

Mr. D. Walmsley (*Stockport*) states:—

> Trade in the Cheshire district has on the whole been of a satisfactory character; engineers and silk manufacturers have had a busy aud prosperous year. Cotton manufacturers (except during the shortage of the raw material) have also been busy. Felt hatting has shown some falling off, especially in the ladies' department. The salt trade which has been depressed for some years has been exceptionally so during 1900, caused by the Indian famine, dear coal, and increased freightage. The minor industries have maintained or increased their ordinary trade.

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Industrial Developments.—On this head *Mr. Sydney Smith* writes :—

During the year 1900 there has been a steady increase in the erection of new factories, many occupiers, in order to keep abreast with the times, having been compelled through want of space and modern requirements to move further afield.

The new factories I have seen are generally up to date, and many are being fitted with the most effective arrangements for heating, lighting, and ventilation. At a large factory in the North of England, I was recently shewn the system for filtering and heating the incoming air during the winter months, whilst during the summer the air is cooled. The arrangement was admirable; the occupier informed me that though the capital cost incurred was very considerable, it was already yielding him good interest in the better health and output of the new factory as compared with his old one.

In the new factories, too, considerable advantage is being taken of the application of electricity for motive power. It is now far more common to find the heavier machine tools in engineering works driven by independent electro motors, the smaller tools and machines being generally arranged in groups with a motor for each group. I have also lately seen examples of large band saws, and circular saws in saw mills driven by independent electro-motors. Several instances have been brought to my knowledge where the immediate control of a short length of shafting, or a machine tool by means of a switch and motor, has prevented the occurrence of a serious accident.

In connection with this subject I would refer to the Industrial Development of Trafford Park, Manchester. I am informed on the best authority that this park, though so close to Manchester, was until quite recently, owing to its privacy, a home for wild birds and fowl of all descriptions. Within the past three years, however, it has been required by a Company, and a large portion has already been sold for the erection of warehouses and factories.

Bounded on two sides by the Ship Canal and the Bridgewater Canal for several miles, the cost of transport and carriage must be considerably reduced for the works in the immediate vicinity. Already a system of light railways is in operation between the various factories, erected and in progress, and the Docks. An electric light and power supply station commenced its operations in the month of July with two sets of engines and dynamos of 1,000 indicated horse-power each. Electric light and power are already being supplied to two warehouses, a large engineering works, an electric cable factory, and a saw mill, besides other smaller works. Light is also supplied for the principal roads in the park and to a number of workmen's cottages. It is proposed to build some thousands of these, and a number are already inhabited in close proximity to the new works of the British Westinghouse Company. This company has acquired some 80 acres of land within the park, and considerable progress has been made during the past six months with the foundations and iron-work for the engineering shops, which are to be among the largest in Europe.

In addition to those already mentioned, three brick factories, a large malting, a fuel works, and several engineering factories are in active operation, whilst a lard refining works, a flour mill, and two saw mills are in an advanced state and nearing completion.

Mr. (*Crabtree*) *Oldham* reports :—

About half-a-dozen large new cotton factories are here in course of erection. When completed these will use about 500,000 spindles. Members of private firms now largely invest in the limited liability companies and have seats on their directorates, so that these are not now, as was the case originally, built on co-operative lines, but are largely the creations of private mill owners working under the Limited Liability Acts.

Accidents.—During the past year 8,389 Accident Reports were received from certifying surgeons throughout the division as against 5,794 during the eight months May to December, 1899. This shows a monthly average of 699 in 1900, as compared with 724 in 1899, or an apparent reduction of 302 for the year. This is so far satisfactory, since the accidents reportable to both Inspector and Certifying Surgeon are presumably of greater importance than those reportable to the Inspector only. Indeed I think that the large increase in the number of accidents reported during late years is chiefly attributable to those of minor importance, not connected in any way with machinery moved by power.

Out of the above-named total number of accidents during 1900, 2,446 occurred in cotton factories; and as the North-Western Division embraces more than 80 per cent. of the total number of hands employed in the manufacture of cotton throughout the United Kingdom, some analysis of these latter accidents will conclusively show what machines and what parts of machines in cotton factories are most dangerous, and therefore need the greatest attention as to fencing. Of these 2,446 accidents, 57 had no connection whatever with machinery, leaving a total of 2,389 directly so caused. From the tables given

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below it will be seen that of all machines used in the manufacture of cotton the self-acting mule is far and away the most prolific in the production of accidents, whilst looms stand next in order, followed at a respectful distance by speed frames (slubbing, intermediate, roving and jack frames) and carding engines.

COTTON MACHINERY ACCIDENTS.

Class of Machine.	Machine.	Number of Accidents.
Prime movers	Boilers, engines, &c.	48
Mill gearing	Shafting, &c.	22
Lifting tackle	Hoists, &c.	79
Wood and metal working	Lathes, circular saws, &c.	35
Blowing room machinery, &c.	Bale breakers	9
Do. do.	Waste breakers	7
Do. do.	Willows	4
Do. do.	Cotton feeders	11
Do. do.	Openers	23
Do do.	Scutching machines	72
Card room machinery	Carding engines	242
Do. do.	Drawing frames	47
Do. do.	Combers	24
Do. do.	Lap doublers	11
Do. do.	Speed frames	270
Spinning machinery	Self-acting mules	810
Do.	Ring and throstle frames	78
Doubling machinery	Doubling frames	17
Do.	Twiners	4
Winding and reeling machinery	Winding frames	39
Do. do.	Reels	6
Weaving machinery	Sizing becks	3
Do.	Tape sizing machines	18
Do.	Beaming machines	10
Do.	Warping mills	3
Do.	Looms	457
Thread machinery	Thread machines	16
Warehouse	Plaiting machines	12
Do.	Miscellaneous	12
	Total	2389

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COTTON MACHINERY ACCIDENTS—*continued.*

Parts of Machine.	Number of Accidents.
Self-acting Mules—	
Between fixed and traversing portions	102
Between carriage and fixed structure	56
Scroll bands and pulleys	118
Carriage wheels and slips	119
Headstocks	40
Rim band pulleys	38
Cog-wheels	64
Driving straps and pulleys	48
Faller stops	36
Quadrants	20
Faller sickles	10
Projecting set-screws	10
Miscellaneous	149
Total	810

Parts of Machine.	Number of Accidents.
Looms.—	
Flying shuttles	78
Driving wheels (crank, tappet, and balance wheels)...	52
Picking sticks, bands, and pins	45
Hammers	35
Duckbills	26
Cog-wheels	33
Treadles	14
Crank and tappet shafts	10
Driving straps and pulleys	11
Projecting set-screws	9
Miscellaneous	144
Total	457

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COTTON MACHINERY ACCIDENTS—*continued.*

Parts of Machine.	Number of Accidents.
Carding Engines.—	
Straps and Pulleys	70
Licker in	41
Cylinder	29
Carrier and roller wheels	25
Doffer wheels	14
Coiler wheels	12
Side shaft bevel wheels	9
Set-screws	3
Draw box wheels	2
Miscellaneous	37
Total	242

Parts of Machine.	Number of Accidents.
Speed Frames.—	
Draft change wheels	48
Lifter rack and pinion	35
Set-screws	25
Spindle shaft wheels	23
Strap and pulley	22
Balance weights (falling)	21
Twist and carrier wheels	17
Bobbin shaft wheels	17
Jack box wheels, &c.	14
Miscellaneous	48
Total	270

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COTTON MACHINERY ACCIDENTS—*continued.*

Parts of Machine.	Number of Accidents.
Scutchers.—	
Lap rollers	21
Beaters	13
Driving straps and pulleys	10
Cage wheels	4
Cog-wheels	8
Set-screw	1
Miscellaneous	15
Total	72

Parts of Machine.	Number of Accidents.
Throstle and Ring Frames.—	
Cog-wheels	30
Driving straps and pulleys	14
Set-screw	1
Tin rollers	9
Miscellaneous	16
Total	70

Parts of Machine.	Number of Accidents.
Drawing Frames.—	
Calender and carrier wheels	15
Undershaft and wheels...	6
Set-screws	8
Pulleys and straps	8
Miscellaneous	10
Total	47

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COTTON MACHINERY ACCIDENTS—*continued.*

Parts of Machine.	Number of Accidents.
Winding Frames.—	
Cog-wheels	16
Miscellaneous	23
Total	39

Parts of Machine.	Number of Accidents.
Combers and Lap Doublers.—	
Rollers	13
Cylinder	8
Cog-wheels	6
Doffing knife	3
Set-screws	2
Miscellaneous	3
Total	35

Parts of Machine.	Number of Accidents.
Plaiting Machines.—	
Blades of knives	5
Crank and shaft	4
Cog-wheels	2
Brake	1
Total	12

Accidents.—Glancing at the above tables it will be seen that the recommendations of the Cotton Machinery Report foreshadowed the most dangerous parts of the machines in almost every instance. As regards the general suggestions of the report it will be noticed that insufficiently fenced cog-wheels and projecting set-screws are in evidence everywhere, the latter more especially in the case of speed frames, whilst the necessity for loose pulleys and strap forks is clearly shown by the number of accidents which occurred through straps and pulleys of carding engines where strap forks have almost invariably been absent. Turning to the specific recommendations of the above-named report for

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particular parts of machines, attention is specially drawn, owing to the frequent occurrence of accidents, to the necessity of safeguards.

In the case of mules for—

1. Carriage wheels.
2. Scroll bands and pulleys.
3. Headstocks, and specially for rim-band pulleys.
4. Faller stops.
5. Quadrants.

In the case of speed frames for—

1. Draft change wheels.
2. Balance weights.

In the case of scutchers for—

Beaters.

And in the case of looms for—

1. Shuttles.
2. Driving wheels.

Further attention is, however, drawn by the tables to two additional points of danger, viz., the lifter rack and pinion of speed frames, and to plaiting machines. *Mr. Crabtree* suggests a guard for the former, and *Messrs. Platt Bros.*, of Oldham, also provide a guard for them.

Plaiting machines are not confined to cotton factories only, but are to be found in many of the Manchester warehouses. *Major Roe* in mentioning plaiting machines writes :—

> These machines caused seven accidents in the Manchester district. It appears that few have hitherto been fenced, but the side levers are undoubtedly dangerous, and we are getting them fenced; but as they are very generally used by "makers-up" and in textile warehouses it will take some time to get this matter completed.

Mr. Beverley (*Manchester*), in describing a guard for plaiting machines, writes :—

> The danger consists in being caught between the traversing arm A and the frame of machine. In the older machines there is a danger of having the toes crushed between the small arm at B and the floor; in the newer machines more space is allowed. A small door is provided in the guard at C to allow the hand-wheel to be got at to adjust the throw of machine. The guard is made of wire netting, let into holes in the floor, so that it may be removed to clean the machine. In practice the mesh of the netting would be very much closer than shown in the sketch.

On this subject *Mr. Graves* (*Liverpool*) writes :—

> It is pleasant to be able to report a great falling off in the number of *fatal* accidents. There were only 68 in 1900 compared with 103 in 1899. Section 23 (1895 Act) is again responsible for more than half of them, thus :—

—	1900.	1899.
Working about docks	33	54
Construction of docks	9	
Warehouses	3	9
Buildings in course of construction	3	10
Factories	20	30
Total	68	103

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Of the 68 accidents—

40 were due to falls;

8 were due to goods being loaded or unloaded striking deceased;

2 were due to derricks breaking;

2 cases were doubtful. One man was found dead in steamer's hold (supposed to have fallen down). The other was found dead under a wagon loaded with excavations. (He had been cleaning temporary railway points at dock in course of construction and is supposed to have been knocked down.)

It is notable that only

2 were caused by machinery in factories proper;

2 were caused by a wall, which was being demolished, falling upon the men;

12 were caused in various simple ways which need not be chronicled.

68

Of the two accidents caused by machinery in factories, in one case deceased had gone inside the guard rail of engine fly-wheel, presumably to oil, but no one saw the accident happen. The fencing, which was of the old single-rail type so much in vogue at one time, has since been altered and made secure. In the other case a man, while oiling the bearings of a multiple punching machine, was caught by a dangerous projecting bolt upon a countershaft and killed. In this case I prosecuted the firm under section 82 and got a penalty of £10. (Deceased had no relatives.)

Non-fatal Accidents.—As regards these both section 23 and factory accidents show only a slight increase, the former from 2,146 to 2,196, the latter from 2,369 to 2,496 (less than one accident for each factory added to the registers during the year).

In the statistical portion of my report I have tabulated the accidents due to the various causes specified by H.M. Chief Inspector, and I think it is worthy of note, considering the extent of the railway system in connection with the docks and large works, that only one fatal and seven non-fatal accidents were caused by moving railway plant.

The method of reporting accidents continues to be complained of by factory occupiers and others as being cumbrous and complicated.

It is urged that one report to the Inspector should be sufficient, and that if the latter wishes further information he can forward such reports as may be necessary for the observations of the certifying surgeon.

My own experience is that the present system leads to great confusion on the part of even the most careful and intelligent people; and at the end of each month I find much time is lost in correspondence respecting accidents for which reports to either myself or the certifying surgeon are missing, and daily correspondence is necessary in respect of many accidents to ascertain whether or not they are reportable to the certifying surgeon.

An alternative to the above suggestion would be to make *all* accidents that require to be reported to the Inspector reportable to the certifying surgeon as well. It certainly seems anomalous that an accident caused by, say a splash of molten metal requires to be reported to the certifying surgeon, while one caused by a splash of vitrol or caustic soda does not; similarly, an accident caused by a mechanical crane must be reported to the certifying surgeon, while a far more serious accident caused by a hand crane need not.

Even a more fruitful source of complaint is the trivial nature of the accidents which have to be reported, particularly on the part of large firms, who have daily to notify and record such facts as a man having cut his finger or bruised his leg, or other slight casualties which are occurring at frequent intervals in any large factory or on dock sides.

Occupiers look upon the obligations imposed by the law in this respect as unnecessarily irritating, and they urge that something should be done to relieve them from reporting accidents so trifling that no useful purpose can be served, statistically or otherwise, by recording them. In support of this view I do not think a stronger argument can be brought forward than the fact that out of 2,244 Section 23 accidents only 491 were reportable to the certifying surgeons, while only 701 of the 2,956 factory accidents were so reportable.

Mr. Law (*Preston*) says :—

My registers show that 2,637 accidents were notified to me during 1900, as against 2,387 for 1899. The great majority of these are of a trivial nature, a large proportion of them occurring in shipbuilding yards, caused either by falls of the persons injured or of materials, and by the use of naptha lamps.

Mr. Sydney Smith writes :—

A large proportion of the annual increase in the number of reported accidents is undoubtedly due to a better knowledge on the part of occupiers and managers of the necessity of reporting all accidents, both machinery and non-machinery accidents.

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Mr. J. T. Birtwistle reports :—

I am sorry to say there appears to be no diminution in the number of accidents, although I am unable to compare with former years, the district having undergone such a change of boundary line.

Mr. Crabtree states :—

There does not appear to be any tendency towards a diminution in the number of accidents in this district, and I can hardly hope for it until our efforts in that direction are more clearly seconded by the employers themselves. Accidents happen in cotton factories precisely as they happened twenty years ago, but with greater frequency owing to the greatly increased speed of the machinery. In my district between 180 to 200 accidents are reported to me per month, and the bulk of these come from the cotton factories of Oldham. The matter of accidents in cotton factories demands very serious consideration, and if there is to be any appreciable reduction more stringent measures will have to be taken. I speak from a life-long acquaintance with cotton workers, and am seriously of opinion that the number of accidents may be reduced by at least 50 per cent. The fact is that hands are called upon to clean near revolving cog-wheels, pulleys and straps with loose rags and waste, and if perchance the rags catch in the cogs and drag in a girl's finger she is severely dealt with, whereas the real blame belongs to her tenter who set her so to clean, and to the occupier of the factory who has neglected to fence the cog-wheels.

Mr. Kellett (*Liverpool*) reports upon :—

A fatal accident occurred in a St. Helens copper works which again demonstrates the danger arising through railway lines being too close to buildings in the yards of many works. I have often wondered that there were not more accidents through similar means, and have frequently called the attention of managers to this source of danger.

Mr. Kellett (*Liverpool*) also reports on the dangers attendant on hemp-spinning machines :—

The fliers of the automatic spinning machines, especially those for hemp-rope making, are a great source of danger, as they revolve at such a high rate of speed. Arising out of an accident through the flier of a Lawson Automatic Spinning Machine, Mr. Brooke, of Messrs. Aspinall, Son, and Brooke, Rope Manufacturers, Liverpool, has patented a guard which should be the means of preventing many accidents of a similar kind. The guard is simple of construction and yet effective, the chief points about it being that the machine cannot be started until the guard is in position, and the guard cannot be removed until the machine is stopped. The guard can be fitted to existing machines, whilst a simpler arrangement, but equally effective, has been devised for new machines. I beg to enclose photographs and a description of the guard.

Major Roe (*Manchester*) reports :—

Two fatal accidents have occurred by bursting of iron tanks, &c. One was by the vulcanising steam tank at an indiarubber works, and the other by an iron drum which had contained sulphuric acid. This latter had been emptied and left for some time exposed to the weather, and was then sent to a small workshop to be repaired, but when a hot rivet was about to be placed in the rim of the drum it exploded, killing one man and injuring another. Several experts gave evidence at the inquest as to the cause of the explosion, which they agreed was owing to a small quantity of acid being left in the drum ; water must have got in and the acid acting on the metal generated hydrogen, which escaping and mixing with the air exploded. It was said to be the first explosion of the kind known to the witnesses. It transpired that a similar drum was at the workshop and bulging, and that the men would not work near it. As neither the coroner nor the police superintendent would give any orders with regard to it. I asked the expert chemists to advise me, and they kindly went to the works with me, and by taking out the screw-bung released the gas, which, however, escaped with such force as to show the danger was not imaginary. I have advised that such empty acid drums should have the bungs removed as a precaution.

Seventeen accidents, five of which were fatal, occurred from attempting to repair, rivet, or put on overhead belts whilst the engines have been running.

Nine accidents happened through letterpress platen machines, but the users of such are now beginning to recognize the risks they run, and have, to a fair extent, adopted one or other of the patterns of guards now on the market.

In ironworks and foundries there are a large number of accidents from small particles of metal being thrown off by emery wheels, and from chippings in dressing iron castings. Dr. Charles White, certifying surgeon at Warrington, has taken much interest in this matter, and has used his influence with good effect in getting a light pattern of goggles, with fine wire mesh, used by men employed at these duties. At one factory I found that no less than five serious accidents to eyes had occurred within a short period, and all from iron dressing ; when, however, I found 15 to 20 men in a limited space, chipping rough iron castings without any precautions whatever, I was not much surprised. The work can be made fairly safe either by chipping against a wall or by screens, and by the use of goggles as an extra precaution.

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Mr. Dodgson (*Bury and Rochdale*), reports on the dangers arising from steam kiers in bleach works :—

> One fatality reported to me raises the question of applicability of the Factory Acts to steam boilers, kiers and other closed structures under steam pressure. The case is that of a large kier used in a bleach works for extracting grease from cotton waste under steam pressure. The kier was without steam gauge and without safety valve. The steam was admitted through a valve which, although closed at the time of the explosion, was proved to be defective, and allowed the steam to pass. The only precaution was a second valve, presumed to reduce the boiler pressure to 22 lbs. This likewise proved to be inoperative, and through both valves the full boiler pressure of over 90 lbs., exerted its power upon a shell calculated afterwards to be only equal to a 25 lbs. strain. The kier exploded four hours after the steam was shut off, killing one man, and more or less seriously injuring eight others. I ascertained, subsequently, that similar explosions of similar kiers, attended with a like fatality, had taken place in this neighbourhood prior to my taking charge. I have probably more bleach and paper works where kiers of this class are in use, to supervise, than any other inspector, and as the pressure, upon these closed kiers varies from 10 to 60 lbs., the question assumes considerable importance.
>
> I believe legislation has been proposed, making it obligatory on the part of a user of a steam boiler to hold a certificate of its examination and security within a limited period, for production on request of H.M. Inspector of Factories, and without such certificate the place has to be deemed not in conformity with the Factory Acts. If legislation take place upon these lines, the steam kier and other structures under pressure should be included; and with advantage too the use of a steam pressure indicator and a safety valve should be insisted upon.
>
> Whilst on this matter, I could wish that some simpler means of detecting and remedying defective plant could be devised than that contained in Section 4, Act, 1895. I have on more than one occasion had to investigate complaints alleging dangerous condition of steam boilers. Investigation has not always dispelled the allegation, and without good evidence it is useless to make an application to court.

Mr. Crabtree (*Oldham*) reports on a serious accident which occurred in the mule room of a cotton mill :—

> A child 12 years of age was sent by his minder to clean the weights which hang under the roller beam of a mule. The child had done the same thing week by week before. These weights hung 14 inches from the back shaft scroll, so that in cleaning them his arm came evidently too near the scroll and thick rope band which works round it, and his right arm, being caught between the band and scroll, was literally screwed off; whilst trying to release himself his left hand was also badly broken and lacerated.

In this case I instituted proceedings against the firm both under section 9 (1), Factory Act, 1878, and under sections 5 (3), and 82 of the Act of 1878.

> Messrs. James Kershaw and Company, Guide Mills, Ashton-under-Lyne, were summoned at the Ashton Borough Police Court, on Monday last, at the instance of Mr. H. S. Richmond, H.M. Superintendent Inspector of factories, on two counts :—
>
> 1. That a child was allowed to clean machinery in motion.
> 2. That they did neglect to fence certain dangerous parts of the machinery, to wit, the scrolls bands and pulleys of a self-acting mule.
>
> It was shown that a child named Charles Harrison, 12 years of age, whilst engaged in cleaning the back weights of a mule, by the instructions of the minder, had his right arm caught by the scroll band, resulting in the loss of his arm, and injury to his left hand. As showing the dangerous nature of these scroll bands, it was stated that 118 accidents, many of them serious, and causing loss or fracture of limbs and fingers, had occurred during the year 1900 in the Manchester division. That two years ago the Home Office had issued a blue book recommending the fencing among other things of these scroll bands. That guards were provided by makers for those who applied for them. That the Bolton Employers' Mutual Insurance Company, owing to the number of accidents occurring, had advised its members, both in 1899 and 1900, to guard scroll bands; and that in September, 1900, Mr. Crabtree, H.M. Inspector of Factories, had written instructing Messrs. Kershaw and Company to provide guards. The firm were fined £3 and costs 11s. 6d. in the first case, being the full penalty for cleaning, and £10 and costs £1 10s. 6d. in the second, the full penalty for not fencing dangerous machinery under section five, Factory Act, 1878.

Mr. Sydney Smith reports two fatal accidents, one at a White Lead Works, near Warrington, and the other at a small Saw Mill at Bolton, both caused by projecting set-screws catching clothing. As illustrations of the dangers arising from the absence of strap forks and loose pulleys, and from the use of improper ladders, I may quote the following from Mr. Sydney Smith's report :—

> A machinist at a Warrington saw mill attempted to remove a twisted belt from a pulley when the engine was running at full speed. For this purpose he used a stick which broke; he was struck in the abdomen by one of the pieces and died a few days afterwards from peritonitis caused by a ruptured intestine.

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A strap piecer at a large engineering works at Manchester fell from a ladder when putting a belt on a pulley. The ladder was to short for the purpose, and was neither provided with hooks to hang on the shafting, nor with spikes to grip the floor, the latter being very greasy.

Mr. J. T. Birtwistle (*Blackburn*) in writing of shuttle accidents remarks :—

Although there have been two eyes lost during the years, these accidents appear on the whole to be less numerous and severe; but a total of 21 for the year, considering that, so far as I know, all looms are fitted with guards, is far from satisfactory.

Mr. G. A. Taylor (*Blackburn*) reports :—

On previous occasions I have been constrained to complain of the careless manner in which shuttle guards—in many instances—were fitted to looms. During the past year I have investigated many shuttle accidents, and on no occasion where serious injury has resulted, has the shuttle guard been placed in that position for which it was intended. On each of two occasions an eye was lost, and both, in my opinion, might have been saved had the guards been placed lower on the reed cap of loom. Every severe accident, in fact, that I investigated could, in my opinion, have been prevented, or reduced in severity had the guard been placed lower on the reep cap, and nearer the shed from which the shuttle flies. Manufacturers to whose attention the deficiency has been drawn, have at once rectified the matter. It is a common opinion that all shuttle guards should be fitted to finger room between guard and loom temple, and that the guard, be it a fixed bar or automatic, should stand almost the width of the shuttle from the reed cap. If this standard of fixing obtained, I am sure that much less injury would accrue from a flying shuttle.

That shuttle guards are properly applied should be the first matter an inspector attends to on paying an ordinary visit to a weaving mill.

Mr. Crabtree (*Oldham*) states :—

Shuttle flying is not yet a thing of the past, but the injuries received have been greatly tempered. From this cause one eye has been lost in my district during the year. The other shuttle injuries were quite trivial. I much prefer the guards of the fixed type screwed directly into the reed cap; they are the most lasting and do not lend themselves to being tampered with. In one shed I found a number of semi-automatic guards tied up by the weavers.

This latter has been found so common a practice that it was considered advisable in one instance to take proceedings against a weaver for tying up the shuttle guard, as a warning to others. A fine of 10*s.* and costs 15*s.* 6*d.* was inflicted.

Throughout the division 78 accidents from flying shuttles have occurred, of which 17 were severe, 7 resulting in the loss of an eye.

The following extract from the "Cotton Factory Times," the representative of the operatives, are of some interest:—

It cannot be denied that the Legislature has done all in its power to protect the weaver from accidents caused by flying shuttles. Before the provision of shuttle guards was made compulsory the number of accidents from this cause reached a high figure, and scarcely a day passed but what some weaver was more or less injured by these instruments. It was recognised that the need for something being done to minimise, or, if possible, prevent these accidents, was imperative, and accordingly instructions were given that all looms should have a shuttle guard affixed. It can scarcely be claimed that any guard at present invented will entirely prevent the shuttle leaving the shed, but at any rate it can reasonably be said that the possibility of such contingencies has been reduced to a low point, and serious accidents are far more rare than they were before the guards became operative. It may be a question for argument, but my opinion has always been that the under-pick loom is more liable to throw the shuttle than an over-pick loom. All looms, however, ought to have guards, and I quite agree with the Inspectors insisting upon the law being strictly adhered to.

When the order was first enforced the manufacturers were given ample time to look round and obtain the best inventions in the market, and I believe the order is now generally complied with. Seeing that the employers have got so well in line, it will be a pity if the benefits arising from these guards are to be neutralised by the action of one or two careless weavers. A weaver has just been fined for having his guard out of action, and I believe this is the first case which has been brought against the operatives themselves. I remember a case being brought under my notice a short time ago by a manager, who pointed out that a certain weaver had his guards tied up, although he had been warned against the practice. I hope the weavers generally, for their own safety, will allow these protectors to have full play. It is a mistake to interfere with them. If it can be proved, as some of them contend, that they are such an incumbrance as to cause a decrease in the production, and, therefore, are responsible for the earning of less wages, that is a matter which can be dealt with in another form if weavers are only sensible enough to perfect their organisation. Higher wages can be obtained by complete organisation, but safety to life and limb must be the paramount consideration in all cases.

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On the general question of safe-guarding cotton machinery *Mr. Crabtree* makes some instructive remarks :—

It is as yet early to speak of the effects of the Cotton Machinery Report, but present probabilities are becoming more encouraging.. With speeds (slubbing, intermediate, roving, and jack frames) there is not likely to be much difficulty, as the parts requiring additional fencing are comparatively few in number. About 60 per cent. of the change pinion wheels in my district are already covered, many having been done during the last six months.

The "jack-box" is well covered in the new speeds, and in these the weights have eyelets cast in them.

In the old weights I am afraid the *hooks* are as much to blame as the *screws*. These hooks are continually being altered by the pull of the weight.

We now see what happens, even if the screw is well inserted. I have often noticed these constantly straightening hooks. In the new weights the hooks are supplanted by swivels.

Set-screws still bristle about the old speeds, and I have freely recommended the use of headless screws which save the trouble of counter-sinking. Managers are surprised that headless screws have not been on the market before, and are satisfied of their utility.

Another source of difficulty with speeds has been the lifter rack and pinion. The motion of this rack and pinion is *almost imperceptible*, and probably this accounts for a number of accidents happening from it. The machine makers provide guards for these racks and pinions which are exported, but these guards are not (for some strange reason) at all adopted in this country.

Mules.—The spinning mules of cotton mills are accountable for the largest proportion of accidents happening in this district.

The recommendations in the "Cotton Machinery Report" affect mules more than other cotton machinery, and up to now it is with the mules that I have met with most opposition as to fencing. Latterly several firms have taken the fencing of carriage wheels in hand, but not, as yet, with any great avidity. As the cost of a carriage wheel guard ranges from 1*d.* to 3*d.* I have reason to hope for its general adoption during the present year.

End scrolls and end draw band pulleys are, as a rule, guarded, though many of these guards are of a very imperfect type.

The old form of steadying band pulley in the middle of the mule-gate is nearly always uncovered, and as it runs in a vertical plane on a horizontal spindle it is risky. One serious accident at this pulley mangled a boy's two hands—one hand was hurt in trying to release the other.

The fencing of the middle scrolls on the back shaft and the back pulleys of the steadying bands are still without guards except in solitary instances. One important exception is in a factory at Ashton-under-Lyne where nearly all the scrolls and bands are well fenced. In one mule room I found all (over 40) of these scrolls and bands fenced, and they had been so fenced for over 12 months.

The fencing of the headstocks has not yet been favourably entertained. Just a few factories have placed one or two guards "as an experiment." These experiments appear to have gone on quite successfully, but the firms in question do not follow on with guards for *all* the headstocks. Some employers have the impression that we require only the two headstocks guarded which are nearest the *walls* of the rooms. This, I have repeatedly pointed out, is quite erroneous, and that *all* headstocks are to be guarded where persons can pass.

I am informed that the Oldham machine makers now supply the following guards *free* with all *new* mules :—

Guard for backing-off wheel.
Guard for speed wheel.
Guard for drag wheel.
Large guard for quadrant.
Small guard for quadrant.
Guard for scroll bevel.
Two guards for drawing-out scrolls at out end.
Two guards for out end band pulley.
Guard for quadrant scroll (fast to name plate).
Two flat guards for middle drawing-out band on floor.
Guards for faller stops.

The following guards are regarded as "extras" and charged for :—

Guard for back of headstock (fender guard).
Two guards for middle drawing-out band at back.
Guard for carriage wheels at back and front, about 30 per mule.
Guard for tightening pulley.

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Blowing-room Machinery.—In about half-a-dozen factories the low armed pulleys of machinery in the blowing-room have been fenced; but as yet there has not been a general compliance with my recommendations in this department.

Fortunately accidents have not been numerous in blowing-rooms in my district during the past year.

I have had several meetings during the year with representatives of the Federation of Master Cotton Spinners Associations on the subject of safe-guarding cotton machinery, with the important result that the federation has recently sent out to all its members a circular, of which I enclose a copy, calling upon them to comply with our recommendations as far as practicable. The Master Cotton Spinners' Association of Bolton and district have also issued to its members a lengthy circular giving full extracts from the Blue Book, *re* prevention of accidents in cotton factories, with the following appended remarks :—

THE FEDERATION OF MASTER COTTON SPINNERS' ASSOCIATIONS, LIMITED.

22, St. Mary's Gate,
Manchester,
January 25th, 1901.

DEAR SIR OR SIRS,

re FENCING MACHINERY.

I am instructed by the Federation Committee to say that the subject of Fencing Machinery has for a considerable time back engaged the attention of the members of a small sub-committee, who have had prolonged conferences thereon with Mr. H. S. Richmond, H.M. Superintending Inspector of Factories for the North-Western Division. Representations were made to him that the demands of the Home Office were in many respects not necessary, and arguments were brought to bear which it was hoped would result in the proposals not being pressed. It was afterwards felt advisable, in the interests of the trade, that Mr. Richmond should meet representatives of the entire industry. A conference of this kind was brought about, and was held at the Federation rooms on October 31st last. There were present representatives from Bolton, Chorley, the Federation, and other districts. Mr. T. W. Shaw, the chairman of the Bolton Master Cotton Spinners' Association, was in the chair. At this conference Mr. Richmond stated that the inspector was the primary judge as to whether machinery was dangerous or not. If he gave orders to fence which were not carried out he could summon, and if a conviction were obtained a fine of £10 could be imposed. If, however, an accident happened on machinery which had been previously indicated as dangerous, and from which an accident had subsequently occurred, the fine on a conviction might be £100, part of which might go to the injured person. The result of this conference was understood to be that as to new machinery the authorities would press for their recommendations to be adopted in all cases, but in regard to old machinery there were certain things requiring large structural alterations which they would not insist upon, owing to the difficulty of carrying them out; but notice to fence would be served where required.

The whole subject was discussed at the last meeting of the General Committee of the Federation, and it was decided to inform the members of Local Associations that whilst the Federation has not agreed that all the fencing demanded is necessary, the Committee is of opinion that Mr. Richmond has shown throughout the discussion a very reasonable spirit.

The Committee is now of opinion that there is no possibility of resisting the demands made by the different factory inspectors, and that as far as practicable they should be complied with.

Yours faithfully,
WILLIAM TATTERSALL,
Secretary.

P.S.—The following is a copy of sub-section 3 of clause 5 of the Factory Act, 1878, with respect to the fencing of machinery :—

> Every part of the mill-gearing shall either be securely fenced or be in such position or of such construction as to be equally safe to every person (employed) in the factory as it would be if it were securely fenced.

Redgrave writes as follows in his Factory Acts :—

> (*c*) By s. 6 (2) of the Act of 1891, this sub-section is amended as follows ;—"All dangerous parts of the machinery and every part of the mill-gearing," &c. The word "machinery" includes any driving strap or band: s. 37 of the Act of 1891. For definition of "mill-gearing" see s. 96.

The added words "all dangerous parts of the machinery," are important. Before the Act of 1891 there was an absolute obligation to fence only in the case of mill-gearing, *i.e.*, the portion of the machinery by which power was transmitted, while with regard to the rest of the machinery, if the inspector notified any part of it to be dangerous, and the occupier disputed his decision, the question whether it was dangerous or not was to be determined by arbitration under s. 6 of this Act, which the Act of 1891 repealed. Now the obligation to fence extends to all dangerous machinery; see Redgrave *v.* Lloyd (1895), 1 Q. B. 95, 64 L. J. M. C. 155, 72 L. T. 565, 43 W. R. 527, 59 J. P. 293; in which the word "machinery" used here was held to

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include all the operative machinery in a factory, and not only machinery *ejusdem generis* as mentioned in this section. The question whether machinery is dangerous or not is now a question of fact for the magistrate to determine in each case.

The recent case of Hindle *v.* Birtwistle (1897), 1 Q. B. 192, 66 L. J. Q. B. 173, 76 L. T. 159, 45 W. R. 207, 61 J. P. 70, is also an important decision upon the construction to be put upon this section. It was there held that the enactment applies to all machinery from which in the ordinary course of working it, danger may reasonably be anticipated, although such danger may arise by reason only of careless working or of external causes.

THE MASTER COTTON SPINNERS' ASSOCIATION (BOLTON AND DISTRICT).

Manneville Chambers,

Acresfield, Bolton,

January 22nd, 1901.

GENTLEMEN,

re PREVENTION OF ACCIDENTS IN COTTON FACTORIES.

I am directed by your Committee to call attention to the following recommendations which have recently been issued from the Home Office with reference to the very important question of Fencing Machinery, and I am desired to say that in the opinion of your Committee, it is of the highest importance than any firm contemplating a renewal of their machinery, or making additions thereto, should be fully aware of the fact that H.M. Inspectors expect the recommendations to be carried out in every detail, and therefore every contract for new machinery should be subject to a clause providing that the particulars enumerated are complied with.

As the result of a conference held at the Offices of the Federation of Master Cotton Spinners on October 31st last, at which your Association was represented by T. W. Shaw, Ed. T. Crook, and Percy Ashworth, Esqrs., and your Under-Secretary, Mr. Richmond, H.M. Chief Inspector of Factories for Lancashire, gave them to understand that he would be lenient with employers with regard to the time for carrying out the necessary work of guarding existing machines, and also that while there were some recommendations which could not be complied with, owing to the want of room, in old mills, there were others which he would be compelled to insist upon being carried out, instancing guards for faller stops, carriage bowls, and scroll-bands of mules, the want of guards to these parts having been found to be the cause of most of the accidents in spinning.

The Blue Book containing the recommendations referred to, and entitled—"Report of two of H.M. Inspectors of Factories, appointed to inquire into, and report upon the Prevention of Accidents from Machinery in the manufacture of Cotton," may be obtained through any bookseller, or from Messrs. Eyre & Spottiswoode, East Harding Street, Fleet Street, London, E.C., or from Messrs. P. S. King & Son, Orchard House, Great Smith Street, Westminster, London, S.W.

The Committee think it desirable that each firm should obtain a copy of the above, in which the recommendations with regard to fencing new machinery and also existing machines are fully set forth, with sketch of all guards recommended.

Yours faithfully,

ALF. HILL,

Under-Secretary.

Owing to the large number of accidents which occur annually through carriage wheels and slips of mules, amounting last year to 119, we are pressing for guards to be applied in every instance, both back and front. There can be no question as to these "being dangerous machinery" within the meaning of the Act, seeing that of the most dangerous machines in a cotton factory, they are the parts which produce the largest number of accidents. As forming an integral part of the machine, these guards should in all cases be supplied by the machine makers. In a great number of instances we have, during the past year, especially after the occurrence of accidents, prevailed on occupiers to provide them. I enclose sketch of the latest pattern, viz., the Hargreaves guard, which I have seen in use at several mills in Blackburn and elsewhere; it has among other advantages claimed for it that of being much lighter than the pattern hitherto in use.

Mr. Tinker reports:—

In dealing with the Cotton Machinery Report, I wish to say that so far as getting dangerous machines connected with the Cotton Industry well guarded, it has done as much good as any Factory Act passed since 1878. It has brought to the knowledge of makers of machinery the necessity of turning out the different new machines in accordance with the recommendations contained in the Blue Book; it has been the means of bringing the desirability of fencing before the Master Cotton Spinners' Association, with the result that a circular has been sent to all the members, signed by the secretary.

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I am pleased to state that the recommendations are being carried out by a considerable number of firms, not only with regard to new machines, but on machines that have been running many years. Ten years ago if an Inspector had insisted on the first general recommendation being carried out, viz. :—"That no projecting set-screws, &c., be allowed on anything that revolves, &c.," it would have been said that he was more fit for a lunatic asylum than to be at large. But what is the result to-day? It has become an established fact that projecting set-screws are the cause of many very serious accidents, and a competition is going on similar to that which went on a few years ago with regard to shuttle guards, viz., people are trying to devise means of preventing such accidents. Countersinking, grub screws, &c., have been tried with some success. I, however, wish to draw your attention to an invention by Mr. Wood, the manager at the works of Messrs. W. Lawrence and Sons, Cotton Manufacturers, Chorley. I herewith send you photo and model from which you will at once see that the great objection to countersinking is done away with. By placing the addition to a weak boss on any revolving shaft, the set-screw is not only out of the way, but the boss made considerably stronger at a small cost.

The invention is not patented, so can be made and used by anybody, and I have confidence in saying that in a few years time where set-screw guards have been adopted, the result will be equal to that attained by use of shuttle guards. In proof of the good the latter have done I may say that in the year 1891, sixteen shuttle accidents were reported to me, whereas only three were reported during 1900. In further proof I will put in a letter of which the following is a copy :—

DEAR SIR, December 29th, 1900.

I am pleased to inform you that during the whole of the present year, we have never had a single accident from flying shuttles (from over 2,000 looms), and during the whole of the four and a-half years, we have had shuttle guards on, we have not had an accident serious enough to report, they have been so slight that the persons have been able to at once follow their employment.

Yours faithfully,

Further comment is I think unnecessary."

Mr. Taylor (*Blackburn*) writes :—

So much has been said and done in this matter that the work of the administrator is daily reduced. Considerable progress has been made during the past year in this district in fencing of mule carriage wheels and headstocks, carding engines, drawing, slubbing and roving frames, &c. It is now a pleasure to manufacturer and inspector to see new cotton machinery.

Mr. J. T. Birtwistle (*Blackburn*) also reports :—

Considerable progress has been made during the year but much still remains to be done, especially in connection with cotton machinery. I am, however, pleased to say that employers now generally recognise the justice of recent demands, and I have hope that at no distant date this defect will be a thing of the past.

Mr. J. T. Birtwistle and Mr. G. A. Taylor had a conference with the Blackburn Masters' Association more especially on the question of looms. I also had several interviews with the loom manufacturers of Blackburn and Burnley. The association agreed to the suggestions as to countersinking all set-screws on looms, and of balance wheels being in future plate instead of arm wheels. As a result I visited a new shed at Accrington where every loom, about 1,000 in number, was fitted with plate balance wheels.

Mr. Law (*Preston*) reports :—

The fencing of cotton machinery in this district has been carried out very satisfactorily. I have found no difficulty in getting the various occupiers receiving instalments of new machinery to provide the fencing recommended in the report of H.M. Superintending Inspectors on this subject. Those occupiers, however, who have old machinery often make demur, and I am afraid it will be some time before I can get the recommendations fully complied with.

I append a circular, with sketch, describing a patent safety peg which can be fitted to all stop-rods of textile machinery. Its object is to prevent the occurrence of accidents caused by machines being started (accidentally or otherwise) when persons are engaged, perhaps out of sight, cleaning dangerous parts. The peg is inserted into the stop-rod in such a manner as to prevent the rod from being moved and the machinery started without warning.

Major Roe on this subject reports :—

Much attention has been paid to carrying out the recommendations of the departmental committee on fencing of textile machinery, but it will be some time before this will be accomplished, for we find that even now some firms are supplying new machines without any heed being paid to the recommendations, probably because there is no law to compel them to do so.

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Mr. Platt (*Manchester*) writes :—

> Fencing of Woodcroft tappet driving wheels of cotton looms is being dealt with; these wheels are at the ends of looms and weavers constantly pass near them. I enclose sketch, Fig. IX, showing safe-guard adopted by one firm.

In my opinion, however, by far the best safe-guard for these wheels is that mentioned above, viz., the substitution of a plate wheel for the present armed balance wheel, with the addition, if further protection is desired, of a small V-shaped guard for the intake of the crank and tappet wheels.

Mr. Platt (*Manchester*) also reports on fencing in calico printing works :—

> The fencing of calico printing machine gearing is somewhat difficult to deal with, as the position of the gearing has often to be altered; when exposed this gearing is obviously dangerous. I have seen an excellent form of guard adopted by one firm, the top part is a fixture with two wings attached by hinges. To my mind the guard is effective; it hinders no one and is well adapted for its purpose. Fencing of calico printing machines generally has been much improved.

Mr. Platt also mentions the following safe-guards, but the illustrations supplied by him are not of a suitable size for this Report.

> (1.) Portable fence intended to protect persons from shaft and drum when putting straps on pulleys.
>
> (2.) Safe-guard intended to prevent accidents, unfortunately so frequent, caused by lifting up the cover of revolving flat carding engine. When the carding engine is at work the cover cannot be lifted. The safety motion is worked from the strap fork.
>
> (3.) Guard for cogs of self-acting heald knitting machine, hitherto only partly protected by the balance wheel.
>
> (4.) Guard for cogs of sun and planet motion of wire polishing machines; this fencing revolves with the cogs. The task of fencing these cogs was thought to be almost impossible, but on the suggestion of inspectors it has now been overcome by Messrs. Tetlows, heald and reed manufacturers, Miles Platting, to their own entire satisfaction.

Major Roe (*Manchester*), in the course of his remarks on fencing of machinery generally, states :—

> Lathes, hoists, and other lifting tackle are the causes of the most numerous and severe accidents in this district. The staff have paid close attention to the fencing of such machines, but there is still much leeway to make up. The back-gear wheels of lathes are being fenced; doors and gates to hoist wells are being raised to a safe height, replacing mere bars; self-acting safety catches are being fitted to hoist doors; cog-wheels of cranes, both worked by power and by hand, are being protected; and guillotine presses for metal work are now generally fenced.

These machines are still the cause of numerous and severe accidents. Great difficulty has been found in providing guards for these owing to the fact that a different type of guard is required for each separate class of machine and work. I enclose sketch of one which has been found very effective for ordinary tin stamping or cutting presses.

Major Roe (*Manchester*) reports :—

> I attach a sketch of a slide to an embossing press which I have got fitted. These presses are usually worked by placing the paper by both hands under the dies, and are highly dangerous. By means of the slide the hands are never required under the dies, and both the occupier, who has altered his press, and the woman who works the machine are satisfied that the output is not diminished, and the danger is done away with. I find that a machine by a Berlin firm has a somewhat similar arrangement, and I propose obtaining a drawing of it. The accompanying sketch, by Mr. Beverley, is also of a machine by a Berlin maker. Both hands must be on the levers before the machine will work.

Mr. Graves (*Liverpool*), on this subject, remarks :—

> Power presses claim as many as 51 casualties, but under this head I have classed accidents caused by any machine of the nature of a power press, including in addition to those in tin box works, all sorts of punches in engineering works, and presses in oil and seed cake factories, and in soap works. The majority of the power press accidents occurred in the Garston Bobbin Factory. This firm have tried one form of guard after another, but until recently with indifferent success, owing to the very small pieces of metal to be operated upon. Now, however, their efforts have, I think, been crowned with success, the works engineer having brought to perfection an excellent automatic guard; it is worked by a cam and lever motion, as part of the machine, and at each operation pushes the worker's hand away from the die.

I have personally seen this guard in use, and think it excellent for the class of machines to which it is applied.

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The following remarks by Mr. Sydney Smith on the fencing of lathes, wood-planing machines, fans, laundry machinery, and letterpress and litho printing machines, may be found interesting :—

The back gearing of lathe headstocks is the source of numerous accidents to turners. These cog-wheels being generally "out gathering" do not at first sight appear to be dangerous. Frequently, also, there is insufficient clearance between the cog-wheels and framing of the headstock, and here again is another source of danger.

In Manchester considerable attention has been paid to this point during the past year, and large numbers of lathes have been guarded, whilst others are in progress. In some districts I find that this precaution is practically neglected. In the Newcastle district I was agreeably surprised to find how efficiently these lathe cogs were guarded ; here it was unusual to meet with lathe back gears unfenced. I am glad to say that tool makers are paying more attention to these details. Many of the American and German lathes now so much in use in this country are well guarded in this respect, and I find that engineers in ordering new lathes are specifying for these cogs to be fenced by the makers.

I have, however, heard of one instance where a firm of tool makers were so foolishly conservative that they lost a large order. They declined to supply guards for back gearing on the ground that they had never done so, nor had been asked to do so before. The order went elsewhere. The back gearing of turning and boring mills, milling machines, and pillar drills, also requires similar treatment. Planing machines are usually sent out by the makers either without guards, or with a guard which is comparatively useless for the purpose of surfacing. All planing machine guards should be capable of two adjustments, a vertical as well as a horizontal one. I have investigated three accidents during the past 12 months which would have been prevented by the use of an efficient guard. In 16 factories planing machines were found unguarded or with defective fences.

Machinemen are generally very careless in adjusting the guards before using the machine. I was served with a subpœna in a Workman's Compensation Case connected with a planing machine accident. In this case I visited a cabinet factory to investigate a planing machine accident, and found the guard lying on the floor. I cautioned the machineman for using the machine without the guard, and threatened proceedings if I again found such a disregard for safety. The next day this man lost part of his hand, including several fingers on the same machine. He had neglected to adjust the guard. The firm tried to prove he had been guilty of wilful misconduct, but failed. The judge was of opinion the man had been extremely careless, but as the guard was fixed on the machine, he awarded him half wages for the time he was incapacitated.

The increasing use of ventilating fans is responsible, to some extent, for a new class of accidents ; I refer to those caused by rapidly rotating fan blades. The accidents are usually caused by incautiously placing the hands too near the blades in order to feel the draught, or through accidentally falling into the fan when oiling the bearings.

I consider that all fans should be protected with open mesh wire netting covers, if placed in such a position that it is possible for any part of the body to come in contact with the blades. This would include all cases except those in which the fan is enclosed in an air trunk or air chamber.

I invariably find that new fans are continually being fixed by the makers without the protection above indicated. Like other machinery the makers can guard fans more cheaply and efficiently at the time of manufacture. As the number of fan-makers in this county is comparatively few, I strongly recommend that each should be approached individually with the above object in view ; it would then be a fairly easy matter to ensure that in the future no fans are supplied without guards.

I have generally found the cog-wheels and dangerous parts of American Laundry Machinery, on the whole, much better fenced than that supplied by English makers.

The cog-wheels of calender machines supplied by a well known firm in the Midlands are usually unfenced. A case has been brought to my notice in which one English firm lost a large order for laundry machinery on this account. It was noted by a party of visitors who were inspecting a laundry, with a view to ordering the machinery for the laundry of a large public institution, that the calenders by one firm were not so well guarded as those supplied by another firm. The order was placed with the makers of the more efficiently guarded machines.

The cylinder cog-wheels of machines of the Wharfedale type should always be guarded. A few makers are now covering these wheels on their new machines. I often find, however, that only the wheel on the working end of the cylinder is fenced. A similar wheel at the opposite end of the cylinder is quite as dangerous. A serious accident to a young girl, resulting in the loss of an arm, occurred in Manchester, early in the year ; her blouse sleeve caught on the wheel, and her arm was taken between the wheel and rack. Attention has since been directed to these points. In the older machines one invariably finds both wheels unguarded.

Mr. Crabtree (*Oldham*), in writing of accidents from grindstones, says :—

The moveable rest has very sensibly diminished the number of these in the Oldham Machine Shops, but the men themselves do not always take kindly to them. In one case a man was grinding a tool at a stone with a moveable rest ; being in a hurry he turned the tool

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with its acute angle between the rest and the stone, for the purpose, as he said, of getting better leverage. He called another man to his assistance, and desired him to hold the rest up, as if fixed, whilst he continued grinding. Needless to say his thumb was taken between stone and rest at once.

Mr. Eatock (*Manchester*), has forwarded to me a sketch of a safety grindstone rest which I append.

Hoists.—Accidents from cage hoists are far too frequent, and moreover are often of a serious nature. A wide field of usefulness here presents itself to the inspector in seeing that such hoists are *securely* fenced in accordance with the requirements of the Acts. No door or gate should be allowed to be less than 5 ft. 6 in. to 6 ft. in height, whilst it is desirable that the law should require the provision of automatic safety doors and safety catches, as I am informed is the case in other countries. I append sketches and descriptions of Knowles safety doors, and of Morgan's patent safety catch, both of which I have seen in successful operation.

Major Roe (*Manchester*) on this subject writes :—

The number of accidents arising from hoists in this district during 1900 amounted to 60, of which six were fatal. Shortly after taking charge of the district I was convinced that much might be done to get users of hoists to recognise the necessity of more precautions, not only in extra fencing but also in working them.

In one instance a girl of 13 years was killed by the hoist in a cotton mill. Anyone could travel at will in the cage, and although there were doors these were kept open during working hours and had no proper catches to secure them. Prosecution followed and a fine of £20 was inflicted, the father of the child receiving £54 12*s.* compensation in addition without the case going into court.

In another case, also in a cotton mill, a woman was killed when dragging a skip and walking backwards:—The cage had moved up and she fell down the well. I found the doors to this hoist were not close to the well but some 6 ft. off. These doors are now fixed close to the well they were intended to fence, and self-acting catches are fitted.

Two other fatal cases were caused by men leaning over gates, which were not of sufficient height, and the cages descending, and yet another to a man by the breaking of the wire ropes suspending the cage.

I have been struck by the number of hoists in places of business which come under Sec. 23 (*a*) (*b*) of the Factory Act, 1895, and which the general public avail themselves of. Such, practically, only come under us when an accident occurs, and we have no power to have them properly fenced. Here I have found boys of 14 to 15 working the hoists.

Other lifting tackle, such as cranes, teagles, &c., have been the cause of 256 accidents, nine of which proved fatal. This is the most numerous class of accidents, and with those from hoists amount to a number which I believe should be greatly reduced in the future. One of these fatal cases was caused by the overturning of a steam travelling crane when attempting to lift too heavy a weight. An indicator is used by the Manchester Ship Canal Company at their docks, and I advise the use of such for all cranes lifting heavy weights.

Hand cranes, such as are largely used in iron foundries and railway warehouses, &c., have two sets of cogged wheels which lead to many accidents. I attach a sketch of a simple and inexpensive plan of fencing such wheels by means of a disc of metal, which has been found a serviceable guard.

Mr. Sydney Smith reports :—

Numerous accidents occur owing to unfenced cog-wheels of hand cranes. It has generally been considered that the inspector had no power to order fencing for these cog-wheels, and for other hand driven machines, such as drills, screwing machines, &c., but I consider in such cases we can proceed under Sec. 4, 1895 Act (power to make order as to dangerous machine). In the Manchester district the practice is to order these wheels to be guarded, and up to the present time it has not been necessary to apply to the court for an order to fence.

Mr. Crabtree (*Oldham*) writes :—

In both textile and non-textile factories hoists are still far too prolific of accidents, frequently fatal. Much has been done in the way of making hoists safer, but hoist makers have in many instances failed to cope with the one important factor that in the operations of a hoist there should be no gaps through which persons may fall. Sliding doors, working horizontally and moved at the will of the hoistman, should be avoided, as they are often left quite open for an indefinite length of time. Rising and falling doors and gates are likewise risky where they depend upon the will of the operator. I have frequently found these gates and doors lifted up on to the third and fourth floors when the hoist has been on the ground floor or at the fifth. Hoists should, as far as possible, and it is nearly always possible, be provided with some form of automatic gate or door 5½ ft. to 6 ft. high, which closes up the aperture as the cage moves

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from any given floor. This is the main factor requiring stringent attention with hoists. I have found some very good arrangements in some new factories, but in the older works they are of a very crude description. A practical hoistman suggested to me that there ought to be a space three feet deep at the bottom of the hoist well below the points where the hoist rested at its lowest stoppage, so that if anyone should fall down to the bottom he should not be crushed by the descending cage; and further, that the bottom should be covered with soft material to minimize the effects of a fall as much as possible. Very often rising one foot above the brick-work foundation is a cross wood structure with which anyone falling comes in contact. A case actually occurred during the year in this district where a man falling on this structure was stunned, and being unable to give any alarm, was mercilessly crushed by the descending cage. I have also noticed in several cotton mills another safe-guard adopted in the shape of wire netting on the top of the cage itself. A fatal accident, where a man fell only 14 ft. on to the pulley and arms on the top of the cage, would have been avoided by this contrivance.

Mr. Beverley (*Manchester*), states :—

The safety-grips of hoists, to arrest the descent of cage, should the suspending ropes break, should be entirely automatic in their action. The grips which only come into action when a man puts his whole weight on to a bar suspended near the top of the cage, are of very doubtful utility, and invariably condemned by hoistmen. Not only is it almost impossible for the man to get any weight on to the bar when the centre of cage is filled with a loaded truck of goods, but in the majority of cases he has not the time nor presence of mind to bring the grip into action.

In spite of the unsuitable character of these grips, and the fact that good automatic grips are on the market, I have during the past year found them fitted to several entirely new hoists. It is very doubtful if we have any power to enforce the use of safety grips, and still less to say of what character they shall be.

With regard to the fencing of hoists in the large number of shipping warehouses in the centre of the city, I have continued to urge the substitution of some better protection than the hooked bars. This has been met to a large extent either by providing inner gates, or by making use of the fireproof doors. In the latter case, the doors are closed by the hoistman every time he leaves a floor, and fastened with a sliding bolt inside, so that no one can open them from the rooms. Communication between the hoistman and rooms can be obtained by means of an electric bell placed in the cage. Some protection of this sort is especially necessary in the large public packing houses, where there are different tenants on each floor, several of whom may be wanting the hoist at the same time. I believe that all the large packers here have now adopted some system of this sort.

Mr. Kellett (Liverpool) says :—

Notwithstanding the numerous accidents through hoists, it is surprising how careless both occupiers and workmen are in seeing that the doors are kept in good working order, and in position when the cage is not at that particular floor level.

Major Roe (*Manchester*) reports :—

Accidents from circular saws numbered 108, none of which were fatal, whilst most of them were slight. I consider that great progress has been made in guarding these saws, which are now only dangerous at the cutting parts which must be exposed. Some guards are, however, much better than others.

Mr. Kellett (*Liverpool*) writes :—

It has been my duty to investigate a considerable number of accidents arising from circular saws, but in all cases they were, I am pleased to state, of a slight character. It is only in isolated cases that I find that guards have not been supplied, but I have repeatedly had to call the attention of occupiers, managers, and workmen, to the necessity of lowering the guard when a smaller size of saw is in use, instead of keeping the guard in one position for all sizes of saws, thus in many instances not *securely* fencing the same.

Mr. Crabtree (*Oldham*) writes :—

Circular saws are now invariably fenced, and there has been a consequent reduction of accidents from that source.

Mr. Sydney Smith reports :—

During the year I was instructed to prosecute one occupier for failing to fence his circular saws. 100 firms have received instructions from me to fence their saws; of these 60 firms were situated in the North of England.

In Manchester guards are now in general use, and one has much less difficulty in enforcing the requirements of the Acts in this respect, whilst the workmen are becoming more accustomed to them, and object less.

In the North of England I have found occupiers much less amenable to reason, but with continued pressure and persuasion I hope their objections will cease.

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The necessity of having the bracket or arm carrying the guard of sufficiently strong design and material has been impressed upon me. In one case a railway company fitted their saws with an effective guard of their own design. I approved of these, but shortly afterwards an accident by flying timber was reported from one of the saws. On investigation, I found that the bracket carrying the guard was made of gun-metal; owing to the design, and possibly also to the nature of the alloy, the metal in cooling had crystallised, forming a flaw at the weakest part. The flying timber had broken this bracket, and the sawyer was somewhat severely hurt, though the force of the blow had been diminished. The whole of the guard when new was painted black, and I concluded it was entirely made of wrought iron.

In my opinion, gun-metal should not be trusted for any part of a circular saw guard. I have also noted in some of the patent guards that the arm or bracket, carrying the guard, is constructed of cast-iron, which again is totally unfit for the purpose.

The majority of the accidents reported from the use of circular saws in the Manchester district were slight cuts, principally from the front or cutting edge of the saw.

In the North of England many of the circular saws are used for cutting English or round timber. Hitherto a satisfactory guard has not been devised for this class of work. I append a sketch of a saw guard which would appear to answer this purpose; I saw the guard working successfully in one saw mill.

Mr. G. A. Taylor (*Blackburn*) states :—

It is pleasing to be able to state that the fencing of circular saws and other wood working machines approaches completion more and more each day. The workmen, themselves, appear to be the greatest opponents of this fencing, and it is very often found that an accident has occurred when the workmen had placed the guard out of action. I have found it necessary on three occasions only to institute proceedings against occupiers for not fencing circular saws.

Estate Saw Mills.—On the question of the application of the Factory Acts to Estate Saw Mills, *Mr. Sydney Smith* writes :—

The inspector is sometimes at a loss to know whether to enforce strictly the provisions of the Acts in these places which are used mainly for joinery work on the estate. In a number of cases public sawing is done at times, and there is then no doubt concerning the application of the Factory Acts. In my opinion, the fencing of engines, mill gearing, and dangerous machinery should always apply to all estate saw mills, and also the reporting of accidents. In any case it hardly seems equitable that one man should have all the protection of the law in his dangerous employment, whilst perhaps, his brother working at identically the same occupation in an estate saw mill, is denied these safe-guards. I had my attention drawn very forcibly to this point on one occasion during the past year, when, after locating for the first time one of these semi-private establishments in which I was assured that no outside work was ever undertaken, on making a few enquiries, I ascertained that a boy had lost several fingers in the knives of a wood planing machine six months previous to my visit. There was no guard to this machine; the circular saw was in the same condition, and also the hand-saw. The flywheel and crank of the steam engine were most dangerous, whilst the main shafting was placed about two feet from the floor, and one had to step across it repeatedly in moving from one machine to another. Upon my recommendation to fence everything above mentioned, the agent and his solicitor objected on the ground that the works were a private establishment.

At another estate saw mill in Westmorland in which the circular saws were unguarded a serious accident occurred a few days after my visit and recommendation to fence, resulting in the sawyer having his skull fractured through a piece of timber flying.

Accidents.—*Mr. Walmsley* writes :—

Hoist accidents would be reduced in number if none but men were allowed to use them. In several factories in this district young girls freely use the hoists for the transit of goods. I have often seen two or three of them together. I should be glad to see the prohibition of children and young persons from using hoists moved by mechanical power.

Shuttle guards are now fixed on all quick running or dangerous looms in this district with the result that accidents therefrom are much reduced. I often find, however, on entering a weaving shed, that the weavers have tampered with the guards.

Circular saws are being gradually guarded, and by the end of the present year, I trust few will be left without guards. I find more opposition to them comes from the employees than from the employers.

Table planing machine guards are now fixed to all machines. Here very little objection is offered by the workmen, as the guards having two movements, the timber can pass either underneath or by the side of the guard.

Fire and Fire Escapes.—*Major Roe* (*Manchester*) in describing certain fires of a serious nature which occurred during the year writes :—

I consider our work of inspection under this head is not nearly at an end yet, although great progress has undoubtedly been made; in fact continued supervision is required on our part, as I do not find that sanitary authorities make any periodical inspections such as the Act appears to impose on them.

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Mr. Law (*Preston*) reports :—

I only know of two serious fires in this district during the year 1900, both of which occurred in Preston, fortunately not during working hours. Last year there were 35 factories on my registers which were considered to be unsatisfactory as far as means of escape were concerned; these have now been reduced to 27, practically all of them within the County Borough of Preston. I am glad to say that since my last report there has been a considerable improvement in the attitude of this Corporation towards this question.

Mr. J. T. Birtwistle (*Blackburn*) remarks :—

The number marked D in my registers, viz., 122, appears rather formidable, but in all cases action has been taken, and notice given to the local authorities where necessary. In many of these cases I have received notice that defects have been rectified, but I have retained them in the registers as dangerous until I have the opportunity of verifying by visit.

Mr. G. A. Taylor (*Blackburn*) says :—

Additional means of escape in case of fire have been provided in several large mills in Burnley, Nelson, and Colne during the past year.

Mr. Dodgson (*Bury and Rochdale*) writes :—

I have, through local authorities or by personal persuasion, been able to get some 20 outside iron fire escapes erected, and in a few other cases I have had structural alterations made to effect the same purpose. In no case has a local authority in this district made a complete survey of the factories as directed by section 7, Act 1891, and a good number of factories still remain unprovided with appliances necessary to make them safe.

Mr. Crabtree (*Oldham*) remarks :—

I have found several escapes of the ladder and platform type well put up, but the windows to which they have been laid have had no outlets. Wherever there is an escape platform, there should be an opening in window or wall, at least 3 feet by 2 feet, which can be freely opened from the inside. The windows where these platforms are placed, should be clearly distinguished inside the factory by being distinctly coloured or marked. In the Werneth fire of last year, men and boys were running in the smoke from window to window in search of the escape.

Mr. Graves (*Liverpool*) reports :—

Moveable fire escapes are, at the best, but broken reeds to rely upon; and in most cases are absolutely useless, certainly in town where the exit would probably be from a high building to a narrow and crowded thoroughfare. At least such is the opinion of all experts with whom I have come in contact.

Section 2 (1895 *Act*) defeats its object to a great extent by being limited to *occupiers* only. To give an instance one of many. In an old building in the street in which our office is situated, are two small factories, a printer's in which five hands are employed on the third floor, and a gold-blocker's in which 12 hands are employed on the fourth floor—there are also in the building a number of offices in which many clerks are employed. The only approach is by a very narrow wooden stair with small landings and sharp turns.

It is plain that, even if the aggregate number of hands employed in the two factories combined exceeded 40, no action could be taken under section 7 (1891) and section 10 (1895) is useless for the reasons already mentioned; and, finally, section 2 (1895) renders no assistance, because it is obviously impossible to call upon either of the factory occupiers in such a building to provide another staircase.

The only result of action under this section would be to turn the occupiers and their workpeople into the street.

I have reported several cases to the Local Authorities with satisfactory results, and I have received much valuable assistance, even in cases where the Local Authority had no power to act themselves, from the Liverpool Building Surveyor, whose co-operation has enabled me to deal with several cases myself.

At present there is no case on my books in which the necessary remedies are not, at least, in course of being provided. Several cases have been written off my fire book as now in compliance with the law.

Mr. Kellett also deals with this question, and his report shows the satisfactory result of his action.

Mr. Kellett (*Liverpool*) reports :—

During the past year I have had occasion to call the attention of the Sanitary Authorities and occupiers to the inadequate means of escape in case of fire in several works in this district. At one large tobacco works I found about 111 females making cigars in the top room of a building with only one staircase leading from it, which was totally inadequate in case of fire, especially considering that the room underneath was used as a store. Notice was sent to the Sanitary Authority, and the place visited by them and condemned. The firm have, however, a new building at present in course of erection, where suitable "means" will be provided, and they promise to remove the whole of these workers to new premises.

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At another place, a small printing works in St. Helen's, I found 57 persons, mostly females, working on the first floor, the only exit being by means of a narrow wooden staircase, near the foot of which was stored a lot of paper. Had a fire occurred near this staircase the retreat would have been cut off, with probably disastrous results. The usual notice was sent to the Sanitary Authority with a very gratifying result, namely, the erection of two *broad* iron staircases outside of the building and at the opposite end of the original one.

At another printing works in Bootle I found 32 persons working in the two floors above the ground floor. In the top room there were 4 males and 12 females, who had to descend a narrow wooden staircase and pass through another room before arriving at the head of the stairs leading to the ground floor. An additional staircase has now been erected, and, although not quite satisfactory as one would wish, it will act as a supplementary one if required.

In several other cases at my suggestions the occupiers have opened additional doors without having had to send notice to the sanitary authority.

I enclose sketch of iron fire escape which has been extensively adopted and found to be satisfactory in the Lancashire districts.

Ventilation, &c.—*Major Roe* (*Manchester*) reports :—

In cotton cloth factories where artificial humidity is resorted to there is ample evidence of the purity of the atmosphere, but in the majority of cotton factories I believe I am right in saying that much improvement in ventilation is required before they can be considered healthy. I have found spinning rooms where fans are not used very oppressive on entering. The temperatures are very high, and there is a closeness and stuffiness in the air which points to a high percentage of carbonic acid, not to be wondered at when one finds each room is almost hermetically sealed by closed windows and doors always kept shut. The heat is caused by the friction of the machinery which is on the increase owing to greater speed, and which is I am told necessary for cotton spinning.

The carrying off of dust, &c., has received great attention, but much yet remains to be accomplished. My experience is that no hard-and-fast line can be laid down to achieve the object in view ; each case must be dealt with on its own merits, but this does not prevent one or two general principles being laid down, of which the following may be considered the most important :—

(1.) That both dust and fumes should be dealt with, confined, and carried off as near the point of creation as possible.

(2.) That dust, &c., should be carried into a chamber for collection, and not blown out by a fan into the open air, which may cause annoyance or injury to others.

Flanellette is an invention of recent years, and the making of the soft surface called "raising" is a highly dusty operation, and these rooms require fans to carry away the dust; but to place a fan in the roof or high up on a side or end wall accentuates the evil. Those firms who have so placed fans will have to alter to the more recent plan adopted, viz., enclosing the raising machine as far as possible, and drawing away the dust by means of tubes or trunks in connection with a fan from below. This plan is most efficient, whereas under the old method the air is always full of dust."

Mr. Sydney Smith gives some interesting remarks and diagrams in connection with the removal of dust :—

Some progress has been made in the local application of fans in dusty processes. I enclose sketches of the arrangement for the ventilation of the card room of a large cotton waste factory in Salford. Previous to the installation the room was excessively dusty. Now even when the dirtiest materials are being carded the atmosphere is kept comparatively clear. The machines are enclosed as much as possible, but a large amount of dust is evolved in the neighbourhood of the lap roller. To these parts of carding machines the hopper mouthpieces are directed. A 54-inch diameter air propellor is employed : separate hopper mouthpieces are fixed over the willowing machine, and four carding machines ; the size of the air trunk increases from 24 inches to 54 inches in diameter.

At two comb factories in Westmoreland I found the conditions in the grinding and polishing rooms very unsatisfactory. The combs are made from horn, and after the teeth are cut these are ground and polished on rapidly-revolving wheels. Clouds of dust are evolved in this process which is carried on by men, women, and young persons. I was informed that the dust was of some value as manure, but no attempt had been made to collect it systematically. The occupiers were of opinion that the dust was not injurious ; it was even suggested to me that it was as good as food and nutritious on account of the gelatinous matter it contained. I am glad to report, however, that a system of mechanical ventilation was successfully applied to one factory, and the second occupier very soon followed suit. I enclose a sketch, showing the arrangement of the installation at one of the factories. It will be seen there are five grinding and polishing wheels which are partly closed in the air trunk ; this is connected to a 24-inch fan which delivers the fine dust into a settling chamber provided with baffle plates. I have since heard from one of the occupiers that neglecting the question of the health of the workers, he regretted he had not had the arrangement fitted years ago, on account of the increased cleanliness of the room and the greater comfort in working.

I have also had fans successfully installed for removing dust from sand-papering machines, emery wheels, and chaff-cutting machines. The only successful way of combating with this

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evil is to confine the dust producing machine as much as possible, and to draw the dust away directly by means of an air trunk coupled to an efficient fan. General ventilation is ineffective in dealing with dust-laden atmosphere. Admirable examples of the former system are to be seen in some of the slipper factories of Mid-Lancashire ; American sole-finishing machines are each provided with small exhausters which, in turn, are coupled to air ducts, and further assisted by large air propellors.

I also enclose reports from Mr. Graves, Mr. Eraut, and Mr. Kellett on the removal of dust and fumes in certain works.

Mr. Graves reports :—

Dust in Dry Soap Works is largely composed of soda, and is of a very powdery nature, exceedingly irritating to the respiratory organs. I allude to one works in particular, where two departments are concerned—the mill-room, where the materials are first ground and mixed, and the packing-rooms where the finished article is packed by hand machines worked by females. In spite of the fact that these machines have been specially constructed, with a view to preventing the escape of dust, considerable quantities do escape. In the mill-room no attempt has been made to improve the conditions, but in the packing-room, which is very large, and has a row of machines at either side, with a passage between, a large wooden trunk has been placed over the centre passage, connected with a fan at one end, and having openings at intervals *diminishing in size as they approach the fan.*

The firm were very proud of this scheme until Mr. Osborn came with an anemometer, and found that only the opening nearest the fan was in the least effective, and that only to a very limited degree. Mr. Osborn made suggestions for improving the system in both rooms, but the firm have just informed me, after five months delay, that it was found impossible to carry out these suggestions, and consequently nothing has been done. I am dealing with the matter, and shall report further at an early date.

Seed cleaning is a process carried on only to a limited extent in this district, and few men are engaged in it; but, though it is only carried on during the autumn and winter months, while it is in operation the atmosphere is heavily charged with dust of a most irritating nature. I have often been struck with the primitive type of machinery generally in use. Uusually the seed is fed through a bin, and falls upon a series of agitated sieves upon which brushes work. The sides of the machine are perfectly open, and the dust escapes in clouds. Once it has escaped, I do not think fans in the room would be of any use. However, last autumn I saw in Chester a new machine which had just been imported from America. It is a great improvement upon the British machine, and is fitted with powerful fans which clean the seed, and collect the dust at the same time.

One wonders when the British manufacturers of machinery will wake up to the fact that British factories are rapidly becoming filled with machinery by their opponents in Germany and America. The reason is not so much the price of the article as the efficiency with which the foreign machine performs its work, and protects the workman at the same time.

The foreign manufacturer has begun his work where the British manufacturer left off, and yet the latter, in most cases, has a contempt for the ingenuity of his successful rival, thinking his old fashioned ways are still the best.

Mr. Eraut reports :—

I have visited a number of those factories in this district, where from the nature of the process of manufacture, much dust is generated. In some, no attempt has been made to protect the workers from the dust created in the process, either by internal means, such as preventing the escape of dust among the workers from the grinding or other machines where it is generated, or by the external method of removing the dust from the atmosphere of a room after it is given off from the machines. In other works there are most elaborate arrangements to prevent the escape of dust.

The cause is not far to seek ; where a proper study has been made of the subject the correct measures are generally adopted, and it is in those factories where the occupiers have found direct pecuniary gain to themselves, resulting from such measures, that they have gone the length of endless trials and experiment to secure their result, and have collected the dust generated in their processes. Dust collecting or dust suppression is, undoubtedly, an expensive item in old factories, and with old machinery, hence the strong opposition raised by occupiers to alter their methods unless they can see a decided advantage to themselves. The usual excuse is "this dust has never hurt me or my father, and my employées like it," a flimsy enough excuse, but one of the most difficult for H.M. Inspectors to combat, because Section 33, 1895 Act, requires proof that the dust is "inhaled by the workers to an injurious extent," and in any proceedings taken on behalf of the workers, likely enough, they will be called as witnesses for the defence, to show how well they thrive on breathing an atmosphere heavily laden with such delectable substances as dry slaked lime, soap powder, and others. If they gave contrary evidence they would be dismissed their employment.

As examples of factories run on both lines, I would draw attention to the following points I have noted when paying visits specially for the purpose at (*a*) flour mills, (*b*) rice mills, (*c*) artificial manure works, (*d*) bleaching powder works.

(*a*). *Flour mills* (*i.e.*, wheat flour as distinct from provender).

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At eleven visited, four of which are very large mills, I am glad to be able to report that, the general conditions were excellent, having regard to the nature of the processes, and the number of hands (very few) engaged therein; and taking the larger works as representative of the various processes in milling flour, it was noted that there was practically no dust in those departments where it is most likely to abound, viz., in the preparing and cleaning of corn previous to its grinding.

This is directly attributable to the conditions under which the process is carried on. A strong blast of air is drawn by centrifugal fans into either a "cleaner," a "separator," or a "brusher," or similar machine (English and American made), and there meets with and cleanses the grain from foreign matter and dust, and carries these with it away along a suitable duct to a collector. Thus the one agent not only separates the dust, but, by its mode of application, also carries away the dust it creates and prevents it being given off into the works. This is a type on which I venture to think dust preventing systems can well be modelled with certainty of successful result. In such a system the fan power required is considerable; with the flour miller it is a necessary item. In other dusty processes it may unfortunately be an addition to working expenses without a corresponding monetary return.

In the process of the milling of flour from wheat I have so far been able to detect practically no dust escaping from the now universal "roller" mills, but there is some dust given off in the "purifier" rooms.

The modern "Victoria" purifier, a favourite with many millers (intended to separate bran from flour), generally has a small fan at the top and out of sight. This draws a fine current of air through the sieves, and lifts out the bran and some of the finest flour. Though "baffled," some of this latter finds its way through the fan into the room and is there deposited. A considerable amount collects when there are a number of such machines in the room, only to be swept up by a man who is thus unnecessarily continually exposed to it.

It is said there would be a difficulty in connecting all these machines to a common exhauster or collecting apparatus, as each machine requires an independent and fine adjustment of draught. Yet I think that with due attention it should be overcome, and to this end several large millers have promised their careful inquiry.

(*b*). *Rice Milling.*—Three processes were up till lately actively carried on at rice mills in this district: (1) Cleaning the imported rice; (2) Shelling off the husk by grinding; (3) Grinding rice to flour.

No. 1, which was very dusty, and No. 2 are now discontinued, most of the imported rice coming ready cleaned.

No. 3 process differs only from flour milling in that buhr-stone mills are still used for rice. The revolving stones create a current of air, which is augmented by the heating due to friction, and this escaping from the mills would give rise to much dust in the rooms where it is carried on.

In one mill with 22 pair of stones working, a system of ducts from each stone-mill leads to a collector and then to a large fan. This serves the double purpose of keeping the stones cool by the current of air drawn through the stones, and also draws away and prevents the escape of dust.

Another mill with nine pair of stones has recently been fitted with a similar apparatus with very marked improvement in the state of the mill room.

(*c*). *Artificial Manure Works.*—In grinding processes where dry materials are treated I have noted dust escaping from millstones with leaky or old and defective wooden or iron covers, roughly constructed shutes and spouts from tops of elevators, and from open tops of conveyor worms, which, as they worked simply, churned up a cloud of dust. Occupiers have been requested to remedy defects in old, and adopt better means in newer machinery, which they seem on the whole inclined to do; some, however, are very obdurate. Of such are artificial manure makers grinding imported mineral phosphates, a process carried on at several factories in this district.

These works are somewhat roughly constructed, often one large shed serves as manufactory and storehouse, to lessen the labour of handling. The machinery is simple, and accordingly there is much hand-work, which brings the workers into contact with dust at each stage.

The mineral, sometimes extremely hard, is crushed and then ground very fine in buhr-stone mills. This and the subsequent sifting and screening are very dusty operations.

At one works where the mill stones were practically shut off from the works, each pair of stones has been connected by wooden ducts to a fan and dust collecting chamber. The apparatus was, however, roughly erected, and not of sufficient capacity to be efficient, and the dust-collecting chamber was very leaky.

At another works newly erected and equipped with machinery expected to create no dust, it was found that the combined result of uncovered or partially covered openings in mills, shutes, and bins, and insufficient fan power, was such as to render the atmosphere in the works cloudy with dust, which should never have been allowed to escape from the mills, elevators, and bins. This will at next visit no doubt be found to be improved.

The fumes given off in the process of converting the ground phosphate by the action of sulphuric acid require to be separately dealt with.

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(*d*). *Bleaching powder works.*—The manufacture of bleaching powder, though not very remunerative, is an important one, owing to the great demand in many different trades. Dry slaked lime is to-day the accepted medium for conveying the powerful bleaching agent chlorine, from the manufacturer to user, and in this manufacture very dusty and dust producing operations exist which claim close attention on account of (1) the great amount of dust, (2) its caustic nature, (3) the dusty product which is both irritating and poisonous, and (4) the amount of manual labour in the manufacture.

I have visited works at Widnes, St. Helens, Runcorn, and Gateshead-on-Tyne, where the manufacture is carried on; the general outline is identical in each, and dust was generated at each place and in each stage of the process.

Hot lime (CaO) is deposited in huge heaps on the floor of the "lime house," sufficient water thrown on so that when slaked it may be dry, thus converting it into a very dusty condition. It is then thrown by shovelfuls up a sloping screen to remove lumps and untouched nodules; what passes through is further broken up in a crusher and elevated by machinery to rotary dressing machines, from which the finer material is delivered into bins from which men wheel it in barrows (without covers) to be "packed in the bleach chambers where it is charged with chlorine. (In Deacon chambers it is packed from the outside, but in Weldon chambers it is wheeled in, deposited, and raked evenly on the floors). At a newly erected works at St. Helens the screening is done entirely automatically in a chamber set apart for the purpose. At many other works the screening is done in one shed with the slaking.

The work gives employment to few men at each works, one or two at slaking and shovelling on to the screens, two to wheel the lime to the chambers, and one or two men to lay it ready for chlorinating.

Each of these men is exposed to dust, for each shovelful raised and thrown down causes a cloud of dust to rise, and the machine, unless very carefully boxed in and enclosed at every point generates much dust, to cope with which there are no fans or other means in use. Similarly the wheeling (in the open air at some works) in large uncovered barrows, and the packing in the low roofed Weldon chambers expose the men to much dust.

To protect themselves somewhat from the dual effects of the dust the men wrap their legs in brown paper and prefer to "take a bite of cloth in their mouths," whilst the man in the lime house obtains some protection (from the weather and wind blowing the material about) by means of a ventilator in the roof and openings in the side walls which may be closed by shutters. Other than these no precautions have hitherto been taken to protect the workers, but the employers have promised to consider this difficult question. It should be noted, however, that the custom of many years still prevails in the process to-day, and men who have worked a long time at this particular part of the heavy alkali work tell me they have grown accustomed to the conditions of their labour, which are somewhat ameliorated by very short hours and high wages.

When the chambers are packed and ready, chlorine is pumped in till the lime is thoroughly impregnated. (In Weldon chambers the lime must be turned over after a few days. The chlorine is turned off; the men put on special respirators and enter the chambers to shovel it over). The chambers are opened, care being taken that all the free chlorine is absorbed, and the same men go in to either pack the bleaching powder into casks in the chambers or else to shovel it through traps in the floor to casks placed below.

This is extremely disagreeable work, for the chambers are low, 5 ft. to 6 ft. in height, from 40 ft. to 50 ft. in length, and 20 ft. or so in width, with only a small door 5 ft. or 6 ft. wide at each end, and a few small apertures in the roof which may be opened if weather permits (the powder must be kept dry). The casks moreover must be shaken down, and this in itself gives rise to more dust than the filling, as it is accomplished by beating the sides of the cask.

Where the casks are packed from openings in the floor of the chamber the packers have the advantage of working in the open air.

To protect themselves from the corrosive action of the bleaching powder the men cover as much as possible of their clothing, oil or grease their faces to protect the skin, and tie over their mouths and under their nostrils a respirator composed of many thicknesses of flannel, and then only are they able to remain in the chambers for a short period, as the atmosphere in the chambers becomes very foul, owing to want of ventilation. (There is no mechanical ventilation, and the shape of the chamber precludes natural ventilation).

In this part of the process again the employers have promised to consider the matter, and I think very sweeping alterations are necessary. (The form of respirator is cumbersome but apparently efficient so far as breathing goes).

Two recent cases which came under notice may serve to illustrate the danger of the so called harmless dust, which could easily be prevented from escaping into the works.

1. A small boy standing just over a mill, grinding unwashed dry galena, to regulate the feed, was smothered black with dust rising from the mill, from leaks in the casing, from the spouts and from the hopper, not properly covered (there was no dust exhaust). A man who had previously done the same work, attending to the mill, was then lying dead from lead poisoning; yet it was contended that the dust was perfectly harmless and there was no need for a fan, &c.

2. A man attending the chlorate of potash mill at a St. Helen's chemical works was white all over (blue overalls on), from dust generated from the mill and issuing from joints in the mill, from elevators and from an open bin. Now, had this man with his overalls smothered

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with chlorate, struck a match or gone near to a fire he ran the great risk of being severely, if not fatally, burned (although his overalls were clean on that day), as several other men have been. In this case the dust was decidedly dangerous to life or limb, yet probably not dangerous to health, and the danger could easily have been avoided with suitable apparatus.

Mr. Kellett reports :—

The difficulty in enforcing Act 1878, section 36, and Act 1895, section 33, owing to the wording—"inhaled by the workers to an injurious extent," has naturally retarded the erection of mechanical fans in many cases where I consider them necessary. In such cases I have suggested to the occupiers that the fans be erected, and in a few instances my suggestions have been carried out. I think employers are gradually becoming alive to the necessity for mechanical ventilation, as they find that the ejection of vitiated air from the workrooms acting beneficially on their workpeople creates a greater output of work. In one large tobacco works in this district I called the firm's attention to the necessity for the further ventilating of the snuff room. In this room, although a fan was erected, the dust from the snuff grinding was so dense that one was unable to remain in the room more than a minute or two, much less be constantly working therein. Additional mechanical fans are being erected, which I hope will leave no cause for complaint.

There are very few textile factories in this district, but in one case where I ordered mechanical fans to be erected in carding room of a jute mill, I found on revisiting that they had been erected with satisfactory results.

Dangerous Trades.—*Major Roe* (*Manchester*) reports :—

Washing appliances are being furnished, where required by the Acts, in a much more satisfactory manner than used to be the case ; and a decision by the County Court Judge here in a case brought for compensation for injury to a workman's health caused by lead poisoning has greatly strengthened our hands, for it was held that merely furnishing a bucket in the workshop and a tap of cold water in another room was not complying with the statutory requirements under the Factory Acts.

I enclose newspaper report of the case.

"A brass finisher named Albert Pearson, this morning, in the Manchester County Court, before his Honour Judge Parry, brought an action against Messrs. Samuel Gratrix, Jun., and Brother, Ltd., his former employers, to recover damages owing to his having become lead poisoned in the course of his work. Mr. W. Cobbett appeared for the plaintiff, and Mr. Langdon for the defendants.

"Mr. Cobbett explained that the defendants were a large firm of manufacturers of gas fittings and other similar articles in Manchester. There was first a claim under the Employers' Liability Act for alleged negligence on the part of the works' foreman in permitting the work to be carried on in a way which was dangerous and injurious to health ; and, secondly, for negligence on the part of the same person in failing to obey the statutory provisions of the Factory Act as to the provision of washing apparatus. There was an alternative claim at common law for negligence on the part of the defendants in failing to comply with the statutory obligations. While working in a room in September plaintiff was taken ill, and on November 3rd fainted and had to be carried home. In a day or two he rallied, but on November 6th became exceedingly ill again, and up to the present he had been unable to return to his work. He called in a doctor, and then learned that he was saturated with lead poison. Plaintiff was advised that he would never be able to go back to the work which inflicted the injury upon him ; indeed, it was doubtful whether he would be able to go back to brass finishing at all. It seemed that for the purpose of putting the fittings together white lead had to be used. After the fittings were put together the workman had to suck them with his mouth to ascertain if they were air-tight or not. The proper course to adopt was to use a pump for this purpose, but the only pump provided at this establishment was one suitable for large work only. In the room there was a lead-burning machine by which the atmosphere was much deteriorated. Under the Factory Act it was incumbent upon the firm to provide suitable washing appliances for the use of the workpeople, but they made practically no provision at all.

Pearson gave evidence in support of this statement, and said that the foreman had told the men that washing was a waste of time, and that he would not have it.

"Mr. Langdon cross-examined the plaintiff to show that in addition to the bucket the men could have soap whenever they asked for it, and that there was some fents in the room to serve as towels.

"His Honour interrupted the cross-examination, and informed Mr. Langdon that the real serious question of the case was the provision of lavatory accommodation. The Act required that suitable washing conveniences should be provided, but there was nothing but inconveniences apparently.

"Mr. Langdon said it seemed to him the question was whether there was evidence of the admitted facts spoken to by the plaintiff to show that the defendants had infringed the section of this penal Act of Parliament.

"His Honour said he would, of course, hear all the witnesses that might be called for the defence, but he did not think it was humanly possible to convince him that suitable washing convenience had been provided.

"Mr. Langdon said that in order to shorten the case he had consulted his clients, and they were willing, after the medical evidence had been called, to pay whatever damages his Honour liked if he found that a cause of the poisoning was the lack of lavatory accommodation. If, however, he found that it was due to the sucking of the pipes he would contend that that was the plaintiff's own fault, as it was a risk he took.

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"Dr. Farraday, who had attended Pearson, gave evidence as to his illness, and said the poisoning could have been caused by either the lack of lavatory accommodation or the sucking of the pipes. He regarded the provision of proper lavatory accommodation as most important.

"Dr. Dixon Mann gave evidence for the defence.

"His Honour said the case was one in which many important points might have arisen; but owing to the evidence they had heard, and owing in some measure also to the proper attitude of the defendants after hearing that evidence, it would not be necessary to go into them. He should give judgment for the plaintiff for £45 and costs.

Writing of bleach works, *Major Roe* says :—

I am indebted to Dr. Niven, the Medical Officer of Health for Manchester, for the following information as to the relative mortalities of certain Lancashire manufacturing occupations. He places (1) glass manufacturing, (2) manufacturing chemists, and (3) bleaching, dyeing and printing works in the order named as the most unhealthy. In my district there is not much of the first, whilst the second is mostly followed by male adults; but in the last named young persons and children are largely employed, and I will mention briefly what I conceive to be the dangers to health in such works, especially bleaching. The bleaching crofts (rooms where the kiers or vessels are) are full of the steam emitted from the hot liquor, which it is difficult to get rid of in dull, damp weather even by means of fans. Boys are employed plaiting down the cloth or cotton yarn, standing in the kiers and in danger of being scalded if the liquor is run into the kier whilst they are so at work. They wear their usual cotton shirts, which become gradually damp, and do not change their clothes either at meal times or when leaving work. There is little wonder then that males at ages 15–20 have the highest mortality in Dr. Niven's tables of any of the scheduled trades.

I have advised the following precautions being resorted to, and they have received favourable consideration and partial adoption from employers, foremen, and workpeople.

(1.) That the liquor (sulphuric acid, &c.) should not be introduced to the kiers until the plaiting down has been finished, but (as is sometimes done) should be run in afterwards from a separate vessel.

(2.) That all kiers should have their upper edges at least 3 ft. above the floor (I have found them flush with the floor occasionally).

(3.) That occupiers should supply flannel shirts to be worn when plaiting down or in any other process which wets the clothes, with rooms for hanging and drying clothes.

As the three trades are each now largely carried on by combines, I believe it would not be difficult to persuade them to generally adopt some such regulations, but I distinctly consider that the bleaching trade is one dangerous to health and would perhaps justify some simple special rules being enforced, if any difficulty is found in getting some such precautions carried out.

Major Roe also reports on the recommendations of the Dangerous Trades Committee on Bronzing in Lithographic Works.

Bronzing in Lithographic Works.

The various means, as described by the Dangerous Trades Committee, of putting on and dusting off the powders are used here, viz.—both by machines and by hand, or partly one and partly the other.

I have been unable to ascertain any case of actual serious illness from working with bronze, but several foremen have stated that many girls leave the work saying that it did not agree with them, especially on first taking to it; and I think it cannot be doubted that it is at least a source of discomfort, to judge from the appearance of the workers, parched and cracked lips, nostrils inflamed, and feverish looks generally are common.

Machines are gradually, I believe, being adopted, especially for the larger work such as almanacks, &c., or where large sheets of paper are dealt with, but there will always be small cards, &c. which are most conveniently treated by hand, and for several reasons certain classes of work must be so done.

Practically no fans or other mechanical means have been resorted to in hand bronzing, but there are at least two factories I know of where machines are used, and metal hoods are fixed in one place immediately over the machines, and in the other factory a fan has just been fixed, but I have not seen it at work yet. The hoods and fans answer admirably.

The latest machines are much more dust proof than the older patterns, and as the trade is now more alive to the harmfulness of the dust than when the Dangerous Trades Committee made their report in 1896, I consider that with our present powers and the co-operation of the trade the dangers from this work will shortly be so minimized as not to require such stringent rules has have been recommended.

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The law as to forbidding meals (Special Exception No. 8) should be affixed and strictly enforced. Dust-proof boxes with glass fronts and an opening for the paper and hands to pass through should be insisted on in all non-machine work. Overalls and head coverings should be provided and periodically washed. Lavatory facilities provided, and in newly opened factories this process should be done in a room by itself. If No. 8 Special Exception be strictly enforced it will lead to such separate rooms as being more convenient.

It has to be borne in mind that the work is not continuous.

Milk is sometimes provided for the workers, but hardly so generally here as in my late Birmingham district.

I submit short reports by Mr. Sydney Smith on (1) Electric Generating Stations, (2) Paint works, (3) Arsenic, (4) Bath enamelling, (5) Manufacture of wall paper, (6) Beer bottling, and (7) White lead works; also remarks on the Special Rules for flax, aerated waters, and enamelling of iron plates.

(1.) The recommendations of the dangerous Trades Committee with regards to these works appear to have been well carried out as far as I have observed. I have only noted one case during the past year in which I had to make any objections. In this case. the high tension cables of a 2,000 volt alternating circuit were bare at the dynamo terminals; the rubber mat in front of the switch board was also very defective. Instructions were immediately given by the engineer to have these defects remedied.

(2.) With one exception I found the paint works in the North of England very lax as to the observance of Special Rules. In one case two glasses of milk were supplied free daily to each worker, and a voluntary monthly medical examination was enforced.

As bichloride of mercury, in addition to arsenic, is used in the manufacture of some anti-fouling compositions and paints, undetected cases of mercury poisoning may occur in such occupations.

(3.) In view of the recent epidemic of arsenic poisoning it may be of interest to note that at a large gas works in the North of England (Newcastle-on-Tyne) where the manufacture of residuals was also carried on, I was shown the arsenic precipitation plant connected with the Ammonium Sulphate House. Commercial sulphuric acid was bought for making the sulphate, but before addition to the ammoniacal liquors, a stream of sulphuretted hydrogen was passed through the acid, the arsenic being precipitated as sulphide, which was allowed to settle, and filtered off. By this means a white ammonium salt was obtained, which I was informed sold better as manure than the yellowish salt containing arsenic.

Other ammonium sulphate makers informed me last year that they always bought sulphuric acid guaranteed free from arsenic for the same reason. If the ammonium sulphate makers could do this there is no reason why the glucose manufacturers should have neglected the precaution.

These facts were brought to my notice several months before the discovery of the cause of the beer poisoning epidemic in Manchester.

(4.) One firm in the district have commenced the process of glaze enamelling cast iron baths. For this purpose the bath is heated to a high temperature in a muffle furnace; the bath is withdrawn and rapidly dusted with powdered fritt or glaze by means of long handled sieves. The process is repeated until a sufficiently thick layer of glaze has been deposited. The process is very unhealthy, on account of the heated conditions under which the men work, the fact that the fritt contains lead, and the quantity of glaze necessary to coat a bath. A large amount of dust is evolved during the sieving process. The present Special Rules for the enamelling of iron hollow ware are inadequate to deal successfully with the process from a hygienic point of view.

The firm at the present time are experimenting with a non-lead glaze and also a wet process. I shall be very glad to hear that their efforts in these directions have been successful.

(5.) In the manufacture of sanitary wall papers turpentine and resin are used for mixing the colours instead of water. I have met with a severe case of "turpentine rash" to a colour mixer. The rash covered the whole of his body and both hands and arms were considerably swollen, with much thickening of the skin. This man had been a colour mixer for twelve years. Other sanitary colour mixers are reported to suffer slightly from the same complaint. I was informed that the hands and arms have to be repeatedly immersed in the colour pans and turpentine during mixing.

(6.) Beer is now often aërated and bottled under pressure. The beer is reported to be improved and is in a fit state for drinking immediately after bottling. The pressure employed is not so great as in the bottling of aërated waters, but I have seen bottles burst during the process in several breweries. The machines are supplied with guards, but in a new German machine these were very inefficient; only two-thirds of the bottles were covered in front, and there was no guard at the side. I have heard of several slight accidents occurring. The question arises as to the desirability of applying Aërated Water Special Rules, or a modification of these to such processes. I have noticed that bottlers usually wear a gauntlet on the right arm only and no masks.

(7.) Much remains to be done to bring the white lead works in Newcastle-on-Tyne up to the standard of the white lead factory in the Manchester district. This firm spent over £3,000 in adapting their works to the requirements of the new special rules, and everything was

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completed by the beginning of the year. Part of this sum was incurred in pulling down a chimney, and rebuilding at a cost of £900 in order to make increased dining-room accommodation. A new mess-room with tiled walls has been built, also a steam laundry equipped with washing machine hydro-extractor, and drying chambers simply for the washing of the men's overalls; a woman is fully occupied for this purpose.

One is instantly struck with the difference in the appearance and standard between the Warrington and Newcastle-on-Tyne white lead workers. The former are steady, regular hands; the latter are mainly casual labourers, careless and indifferent to the dangers of their occupation. At one of the white lead works in the Newcastle district I found upwards of 11 men on one occasion working without overalls in stripping the white beds. The overalls, too, supplied by the firm were very unsatisfactory, more in the nature of sacking than anything else. I was not at all surprised to hear the men object to wear them. A stricter enforcement of the rules would in my opinion do much to lessen the frequency with which lead poisoning occurs amongst the Newcastle workers. At the Warrington works the only irregularities I have ever discovered were slight technical offences in neglecting to sign the bath register on one or two occasions.

Though few works in the North of England come under the flax special rules, I have generally found them unsatisfactory as regards their observance; an absence of fans or defective ventilation in hackling, dressing, and preparing rooms, and excessive dust in weaving sheds. At one small mill in particular the dust was very bad. Here two of the fans were not working, and a third, owing to the belt being crossed, was actually working the wrong way, and churning up the dust instead of getting rid of it. I am of opinion it had been so running for a long time as both the manager and foreman tried to convince me I was wrong until I shewed them the direction of the air currents, and had the fan-belt replaced for a straight drive.

The special rules for aërated waters appear to have been much better observed. I have only detected five instances of neglect in wearing gauntlets or masks during the year. I have lately seen a face-guard in which part of the wire gauze is cut away in front of the eyes and replaced by a transparent sheet. This should meet the objection of those who allege that squinting or impaired eyesight is caused by continually wearing a mask of wire gauze before the eyes.

There are only two works under the special rules for enamelling of iron plates in the Manchester district. In one I found serious breaches in the observance of the law early in the year. The firm were cautioned and instructed to comply forthwith. At a later visit by one of H.M. Lady Inspectors it was found that nothing had been done, and the firm were successfully prosecuted.

At the other works I found the female workers going home with their working overalls beneath their dresses, a most undesirable practice, though there is nothing in the present special rules to prevent it.

Mr. Graves (*Liverpool*) forwards the following report on several dangerous trades:—

Under this head one might write much for it embraces the whole range of one's work.

However, the following are among the more important items which claimed our attention during the year:—

(1.) Dust in limehouses in alkali and other chemical works.
(2.) Dust in flour mills, rice mills, and artificial manure works.
(3.) Dust in dry soap works.
(4.) Dust in seed cleaning.
(5.) Enamelling of copper discs and letters.
(6.) Galvanizing.
(7.) Lighting of factories and workshops; and
(8.) Railways in and about factories.

Upon the first two heads I need make no remarks, thanks to the able report which Mr. Eraut has made, to which I refer you for details. He has gone deeply into the question of dust collecting and dust prevention, and has done much valuable work in this direction.

I think the question of the limehouses is the most urgent, but there are great difficulties in the way of altering conditions which have obtained for so long.

Enamelling of copper discs and letters is a process carried on somewhat extensively here, considering that it is only a small trade. Most of the premises are workshops, power not being necessary except in the mixing and grinding of the materials for the glaze. Soon after I came to Liverpool my attention was drawn to a supposed case of lead poisoning to a girl who had been employed in one of these works. After investigating the case, which proved to be genuine, and was, I believe, the second which had occurred, I visited all the works in the district, and was assured by the occupiers, most of whom bought the glaze in London or Paris, that it contained no lead, or at all events very little, and that the powder used for dusting on the printed figures contained none at all. However, I urged that washing conveniences be provided.

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Again in May another case of lead poisoning came to my notice, and on this occasion I obtained samples of both the glaze and the powder and sent them to London for analysis. Analysis disclosed the presence of over 60 per cent. of lead in the powder and over 45 per cent. lead and 6 per cent. arsenic in the glaze. In consequence of this disclosure I wrote each occupier, giving him the result of the analysis and suggesting that he should provide (1) adequate washing conveniences, (2) overalls and head coverings, and (3) that the "dusting on" should be carried on under a glass covered box (similar to those used in bronzing).

Subsequently Dr. Legge came here, and after making extended inquiries, submitted a special report to H.M. Chief Inspector.

The total number of factories and workshops in the district under Special Rules is 103. Of these the most important are two white lead factories, five lead smelting works (two very large ones), two lucifer match factories, and several large paint factories.

The white lead factories have both received considerable attention, particularly the one at Runcorn. At Chester white lead is produced by the Dutch process, but at Runcorn white lead is produced from pig lead in a few hours by the Matthews patent.

Early in the year I had brought to my notice 11 alleged cases of lead poisoning amongst workers at the latter works. As none had been notified to me by the firm, I visited, along with Mr. Eraut, all the persons whose names had been given me, and we discovered that since the works had started, about 18 months before, there had been a regular epidemic of lead poisoning, two men being permanently paralysed. Unfortunately all the sufferers had contracted the disease more than six months prior to my discovery, except in one case, and in respect of this one I prosecuted the firm, first for failing to report the case, and second for failing to observe the special rules. In both cases I got a conviction. I found that in every case the disease had been contracted in connection with the oxidising plant, which was most faulty. The oxide was drawn from the chambers in a dry state and wheeled in barrows a short distance and deposited in great heaps on the floor. It was afterwards shovelled into barrows and wheeled to the carbonating plant, all the operations being performed as though some absolutely harmless material was being dealt with.

Exposure of their methods resulted in the firm drafting out plans and proposals for safeguarding the workers. These I sent to Mr. Osborn, who visited the works on several occasions and gave most valuable instructions and advice, which have quite revolutionised the manner in which the lead is dealt with in the various stages of manufacture. Fans have been put over the oxidising plant, and the material is now drawn from the chambers in the form of sludge and is deposited in large tanks. At my last visit I suggested that it should be conveyed by automatic means from these tanks to the carbonating plant, and the manager told me he had the matter already under consideration.

At Chester also a great improvement has been effected in the last year, but the stoves needed so much alteration to comply with Rule 6 of the New Rules that the firm have recently asked for, and been granted, two months' grace by the Chief Inspector. In every other respect, at the present time, the Rules are being fully complied with.

At my last visit to Chester an illustration of the difficulties occupiers have in battling with the stupidity of workers came under my notice. The men's cloak-room is a large apartment, having a row of little compartments fitted with clothes pegs at each side of the room. In those at one side the men are supposed to hang their overalls, and at the other the garments which they leave off when at work, in order that there may be no contamination. Yet, in spite of warning and notices affixed in prominent places, and a liberal distribution of Dr. Legge's memorandum, the men continue to hang their overalls and clothes upon the same pegs.

In order to force the men to take their baths the firm have had to institute a system which ensures that no man can receive his pay until he has produced to the pay clerk a metal check given him by the bath attendant after he has had his bath and signed the register.

I honestly think that in such works as this the workers are themselves responsible for most of their lead poisoning.

Though there are five lead smelting works on the register, only two are of any importance; two have not been found at work during the last three years, though they are not actually closed: and one which is in connection with a chemical works is not yet in full operation and, even when it is, will be only a subsidiary process. Of the two large works, one is an old established place at St. Helen's, in which there has been only one reported case of lead poisoning during the year, and it calls for no special comment; the other is a very important place, situated at Ellesmere Port, a small village in Cheshire, near the entrance to the Manchester Ship Canal. Though this works has been in operation for about two years, it was really in an experimental stage for the first year. It is now in full blast, and is producing excellent pig lead from an ore which has hitherto been looked upon as absolute waste.

Unfortunately this great commercial success has resulted in undermining the health of many men, one of whom has practically lost the use of his arms, though a year ago he was a fine, strong fellow.

During the year no fewer than 13 cases of lead poisoning (out of a total of 28 for the whole district) have been reported from this works alone. The constant recurrence of these cases has caused me much anxiety, and I have paid frequent visits to the factory with a view to locating the exact cause. This was difficult, because in almost every department, even outside on the slag banks, men were attacked. The firm appeared equally anxious to put a stop to such a serious state of affairs, and many experiments were tried with different forms of hoods

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or bonnets for the cupola, from which I felt sure the danger emanated, though the firm thought otherwise, being of opinion that the lead, as it flows from the tap-hole to the lead-well, is at too low a temperature to be volatile. At Dr. Legge's suggestion the firm took samples for analysis of the air above the lead-well, the slag-tap, and the briquetting-machine (where there is much dust).

The result was a surprise to the firm, for from the analysis Dr. Legge estimates that in eight hours a man employed at the cupola would inhale 7·3818 grains of lead, while at the briquetting-machine he would inhale in the same time 91·5953 grains of lead. The firm have now provided all that can be desired in the way of bath and washing accomodation, and, with a view to checking the disease, have arranged, also at Dr. Legge's instigation, for a periodical medical examination of every workman.

I think the Special Rules for this class of works are quite inadequate, as they do not deal with the daily operations, but only with operations carried on twice a year for a short time. The firm complain of the inadequacy of their powers to force the men to make use of the lavatory accommodation.

There are only two lucifer match works in this district, and they can hardly be compared. One is an example of what can be achieved by the voluntary effort of the occupiers, who in this case have gone far beyond Special Rules requirements in their care of their employees. The other works are typical of what compulsion alone can achieve without the hearty co-operation of the occupiers. The factory is quite a new concern, but it has been constructed in the cheapest possible form—possibly more from want of money than from want of will on the part of the firm; but the result is unsatisfactory, notwithstanding the fact that the Rules are complied with and Mr. Osborn's suggestions carried out, but only barely.

There are 64 chemical works on the Registers, but, besides the processes dealt with by Mr. Eraut in his report, the only works which I think call for special note are those of the Castner Kellner Alkali Company, Ltd., at Weston Point, Runcorn. I believe the interesting processes carried on by this firm have been dealt with in previous reports, so I need not describe them. They are chiefly important, so far as this report is concerned, from the fact that very large quantities of mercury are used in the course of manufacture of caustic soda. The works are otherwise rendered important by the extent to which electricity enters into the process, there being here one of the finest electrical installations in the kingdom. In 1898 Mr. Eraut reported that: "A washing process is carried on which removes the sodium as caustic hydrate, and leaves metallic mercury to be again used. This washing, however, has not given rise to any cases of mercurial poisoning since the works has been started." Early in 1900 it was reported to me that a case of mercurial poisoning had occurred in Runcorn some time before. On making enquiries I found that a young man who had worked in the mercury-washing department was, some months previously, suffering from what I have no doubt was mercury poisoning. However, as he had recovered and left the country, I could not pursue my enquiry very far. I saw his mother, the firm, and the doctor who attended him, but the evidence was conflicting, and I could not do more than warn the firm to be careful in ascertaining the causes which kept their workmen away from their work in future. At the time of my first visit the mercurial residue was collected and cleansed with nitric acid in a vessel agitated by hand. The cleansed and dirty mercury were also weighed by hand. I urged upon the firm that some mechanical means of washing might be substituted for the crude means then in use, and, at a recent visit, I was pleased to see that the handling of mercury has been reduced to a minimum, mechanical means having been adopted wherever possible. The men are provided with india-rubber gloves and have ample washing accommodation.

Paint and colour works received considerable attention during the year. I found that no paint works in the district had a copy of the 1896 Rules, and consequently where vermilionette was made there was no bath. At first I had to contend with considerable opposition, but finally I prevailed upon most of the firms to provide baths or cease manufacturing vermilionette. One large firm has done neither, and in this case a prosecution is now pending.

I have on various occasions pointed out what seemed to me weakness on the part of the Paint and Colour Rules, namely, that respirators and overalls and sanitary drink are only required in departments where dry *white lead* is used, while red lead and all the other noxious lead compounds used in paint manufacture are entirely ignored. Again, in a red lead factory *no* red lead can be packed except under a hood connected with a fan, but in a paint factory any amount can be packed without the provision of even a respirator. In one factory here as much as 100 tons per annum is repacked for issue in small quantities. Wherever I have found repacking going on to any extent I have asked for a hood and fan, but so far without much success.

Mr. Kellett also makes some valuable observations upon this important matter, and gives details of a case of lead poisoning which more stringent rules would probably have prevented.

Lighting of Factories and Workshops.—I recently had reported to me a staircase, leading to a workshop at the top of a building, which it was positively dangerous to go either up or down after dark, for it was quite without light. This would be a case in which the owner should be dealt with.

Railways in and about factories are a source of considerable danger to life and limb. I recently investigated an accident whereby a man was severely crushed between a locomotive and an electric-light pole in a factory in which there are many lines of rails. By the time I got to the factory the post had been removed, but I found that no notice had been taken of several others which were dangerously close to the rails. I discovered one which only

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allowed a clearance of *eight inches* between the footplate of the locomotive and itself. Even sheds through which trains of bogies had to run were erected with the uprights in close proximity to the railway lines. And this is a works quite recently erected. I have asked the firm, and they have promised, to remove the posts to a safe distance wherever practicable, but I don't suppose this will include the uprights of buildings.

Fortunately, I know of no other similar accident having happened last year, and I only mention this case to show how prone occupiers are to overlook obvious and unneccessary dangers which they themselves create in the erection of their works.

Mr. Kellett (*Liverpool*) reports on the Special Rules for paint and colour works, earthenware works, and lucifer matches; also on the recommendations of the Dangerous Trades Committee on the use of putty powder in glass works. Extracts from his reports are appended:—

Complaint was made that at a certain paint works the men working in red lead were not supplied with overalls. On investigation I found that a man was engaged in reducing red lead, *i.e.*, mixing it with other ingredients (non-poisonous). He had undoubtedly suffered from lead poisoning, and had asked the manager to supply him with overalls and a respirator, but had been refused them. I was unable to take any action in the matter beyond making suggestions to the firm, as the man was not engaged in grinding in oil or water, nor working in the department where dry white lead or arsenic is used.

A few slight cases of lead poisoning have occurred amongst the dippers. This dipping consists of pouring the liquid for glazing purposes into the mugs, &c., by means of a jug, &c., the mugs being turned round whilst held in the hands and the liquid poured back into the original receptacle. During this process a deal of splashing of the liquid sometines occurs. Occasionally the outside of the mug is glazed by simply dipping the mug into the liquid and lifting it out again. At the Diamond Match Company's factory, in addition to the quarterly examination by the certifying surgeon and the appointed dentist in accordance with the special rules, no new worker is allowed to work in a "phosphorus process" until they have been examined by the appointed dentist, and, if passed by him, for not more than seven days without being examined by the certifying surgeon. For this purpose, and to attend to any worker requiring his services, the dentist attends at the factory each work day. Arrangements are now being made whereby *all* persons employed in this factory shall be examined by the certifying surgeon and the appointed dentist once per quarter. The ventilation of the different rooms has been studied, and that in the wax vesta room has been further improved by the erection recently of an induction and extraction system, a uniform temperature being maintained during the whole of the year.

In the Liverpool district, there are four large works at St. Helens where polished plate glass is made for shop windows, mirrors, &c. These works are, I understand, the only ones of their kind in the United Kingdom, and at present one is closed owing to the high price of coal and foreign competition. The recommendations of the Dangerous Trades Committee were brought to the notice of these firms, with the pleasing result that putty powder is now dispensed with, a leadless substitute being now used, and in one case rouge only is used, though the men strongly objected at first to the disuse of putty powder, stating that the finish, &c., was not quite so good as formerly, an erroneous idea which has now been removed.

The accompanying report on a fatality from carbon monoxide poisoning is from *Mr. Crabtree* (*Oldham*):—

A fatal accident which occurred in my district from inhalation of carbon monoxide gas recalls a point of danger in premises where this gas is generated. A firm of gas engineers have installed a Dowson producer gas plant for the purpose of generating producer gas. This they use for testing the gas engines they make. In the yard adjoining the premises is a syphon pit, five feet square and three feet deep, where certain pipes are laid at a convenient depth for regulating the pressure of the gas.

At times the syphon got empty, and the man's duty was to take water down to the pit in a can or jug (or use some of the water in the pit) to fill this syphon. Part of the pit was permantly covered. The man who was poisoned had gone down the ladder with his little water holder, and was found about 45 minutes afterwards lying dead across the pipe with his head downwards in the water.

The tap was of small bore and (being of brass) was broken off at its insertion in the pipe. At the time there was, of course, gas in the pipe. At the inquest which took place it was made perfectly clear by the post mortem report of the surgeon who investigated the cause of death that the deceased had been poisoned by the inhalation of a gas which contained, among other constituents, carbon monoxide, and the jury returned a verdict accordingly.

The man took up the cover B and descended the ladder; he would, of course, step on the pipe, as water rested in the bottom of the pit, and then in reaching over underneath the door C and the cover A, he probably slipped on the curved surface of the pipe, and in stumbling broke off the tap, from the aperture of which the gas would flow very freely. Such a slip was by no means improbable, as the corner where the syphon was placed was in semi-darkness. There was no evidence that the man knew of the poisonous nature of the gas, and he may have broken the tap off in going to or in returning from the syphon, as the syphon was afterwards found to have some water in it.

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The gas under consideration has the following percentage composition :—

Nitrogen (N)	50 per cent.
Carbon Monoxide (CO)	20 „
Carbon Dioxide (CO_2)	6 „
Various Hydrogen Compounds	24 „

I advised the firm either to have the pit-top entirely open or to adopt some other method of testing above ground.

They have adopted the first suggestion, and the pit is now open to the air and railed on all four sides.

The pipes, syphon and tap are now always in full view. As I pointed out, there was in the former arrangement no ventilation of the pit, and some of the constituents of the gas being heavier than air, any escape would be likely to remain in the pit, to the risk of the attendant. With an open pit air currents are now atmospherically induced and the risk is removed.

Mr. G. A. Taylor (*Blackburn*) reports on a case of poisoning from arseniated hydrogen at the works of Messrs. William Blythe & Co., Chemical Works, Church, in August last. Nine men were reported by the firm as ill and suffering apparently from the inhalation of some poisonous substance, one of whom subsequently died. At the inquest it transpired that the men were all engaged in the process of chloride of zinc making. The components in the manufacture are hydrochloric acid and zinc which contained some arsenic. The jury returned a verdict that the deceased, James Cornwall, died from arseniurretted hydrogen poisoning.

The terrible explosion in the proofing-stove of a felt hat factory at Denton, near Manchester, reported upon by Mr. Crabtree, belongs more properly to the present year, having occurred on January 14th, 1901, and has been made the subject of a special joint report to the Secretary of State by Captain Thomson, H.M. Chief Inspector of Explosives, and myself.

Washing Appliances.—Several of H.M. Inspectors write strongly on the question of suitable washing conveniences being required in all factories.

Mr. Sydney Smith remarks :—

I am hoping that in time it will be necessary to provide washing conveniences in all factories. A regulation to this effect would do much to inculcate habits of cleanliness amongst the working classes, certainly among the younger generation, if not among the older hands. I have noticed with pleasure in several new engineering factories that washing conveniences have been provided for all the employees. I am strongly of opinion that personal cleanliness, method, and good workmanship, go hand in hand with each other.

Time-Cribbing.—Both Mr. Crabtree (Oldham) and Mr. Dodgson (Bury) comment strongly on the prevalance of time-cribbing in cotton mills in their districts.

Mr. Crabtree writes :—

As this illegality has assumed a somewhat general aspect, it may be necessary to consider what further steps should be taken to deal with the matter ; nearly every cotton mill cribs time. In these defaulting factories the manufacturing process too often begins at 5.30 to 5.55 a.m. ; continues to 8.5 a.m. ; is resumed at 8.25 a.m., and stops at 12.35 to 12.37 noon ; it begins again at 1.25 p.m., and continues to 5.35 p.m. There is thus over 30 minutes deliberate illegal overtime put in on each of five days in the week, and about 15 minutes on Saturday, or about 160 minutes per week. That is to say, the day hands in these factories have to work 2½ hours per week more than should be demanded of them, and for this illegal demand they do not even receive the recognition of payment.

Mr. Crabtree speaks with the experience of thirty years' knowledge of the trade, having himself, as a boy, been subjected to the above treatment.

Mr. Dodgson reports :—

The practice of what is known as "time-cribbing" is very prevalent in certain townships in the Rochdale district. It is indulged in in most towns occasionally, but in some places it amounts to a scandal. The evil is confined almost entirely to the cotton industry, and in this district more to the weaving of cotton fabrics than to the spinning of yarn. It is difficult to detect, because the instinct of the whole community, where it prevails, is favourable to it.

I think the duties of Inspectors would be greatly simplified and the practice reduced if there was a fixed substantial penalty for starting the main engines before or for running

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the engines after the legal hours, whether of meal times or periods of employment. The engine-house is usually more accessible than the rooms of the factory itself, and the fact of its running more easy of proof than illegal work by individual hands.

Child Labour.—*Mr. Walmsley* (*Stockport*) reports :—

The number of half-timers in this district is rapidly decreasing. and, as stated in a previous report, a few more years will probably nearly see their extinction. In previous years, when wages were low and food-stuffs dear, the half-timers' earnings were of some value to many poor families; but to-day, factory and educational conditions are very different to what they were 20 or 30 years ago. Wages are now considerably higher; food-stuffs and clothing are cheaper; education considered more necessary. Such being the case, it seems that half-timers are gradually being elbowed out. In 20 years from now we may be surprised that a half-time system ever existed. The table below shows the diminution of half-timers :—

Year.	Stockport.	Macclesfield.	Hyde.	Total.
1892	1,604	1,172	547	3,324
1894	1,195	827	422	2,444
1897	786	500	287	1,573
1900	447	290	190	927

Mr. Crabtree (*Oldham*), gives his opinion on the half-time system in the following words: he speaks as one who worked as a half-timer for five years :—

It would appear that the half-time system is comparatively near the throes of its existence In my district, which in former days to my own knowledge was the centre of this system, and the "home" of the half-timer, there has been a very appreciable diminution in their number.

In the older factories where formerly 100 to 150 were employed, the number now stands at about one-tenth of its former self. As a rule, occupiers do not want half-timers. It is the minders who want them for piecing at the mules, as too little (half-time) piecers do not cost him as much in wages as one big piecer (say of 15 or 16). The card-room tenter also wants the half-time girl for the same reason, and also to assist her to do the frequent cleaning of her frames. The half-timer is a very cheap labourer, and work can easily be got out of him. Half-time boys do an enormous amount of illegal cleaning. They clean the weights of mules when the mules are in motion, although their minders know quite well of the illegality; they pick the cotton fluff off the moving draw-bands; they brush the carriage wheels as they travel along the slips; and terrible to relate, they pass in and out under the roller beam, and between that fatal beam and the carriage while the latter is in motion. All this is quite familiar to the minder, and is even frequently winked at by the manager and overlooker who professes to excuse himself by affixing a conveniently printed notice of warning high up in the mule-room.

Those terribly fatal accidents which happen to these half-timers from time to time between the carriage and roller beam when their heads are mercilessly fractured, are *not* generally due to carelessness on the part of the boys at all, but to the fact that time after time with the knowledge and tacit consent of the minders they have been accustomed to go under when the mule has been in motion. A boy thus gets caught, he went under once too often; the minder recognises his own blunder, and as dead boys tell no tales his opprobrium is heaped on the dead half-timer who, according to his minder "ought not to have gone in" or "went in before he should have done," or "stopped in longer than he ought to have done," or "should have been sharper."

I am glad to say that I have found some good straightforward men among these minders who treat these boys as if they were their own children. They do not get the same amount of money as the "hurry-skurry" minder, but they are free from accidents.

The half-timer is lacking in experience and knows not the dangers of the mule-room.

It is hardly necessary in these days to think of upholding the half-time system. It is obviously doomed, and its doom is a matter of time. Few people have much to say in its favour, except men with big families. The poverty plea is the only apology for its existence, and this is very largely overdrawn. The large majority of people who send their children into the factories as half-timers, do it because it has been customary so to do from their grandfather's days. It is not because they are poor and in urgent need of the extra 2*s*. 6*d*. or 3*s*. per week, but this small sum they say "comes in," that is to say, "it is convenient" to buy clothing or food, &c. There are certainly, cases of very poor families where this 2*s*. 6*d*. or 3*s*. multiplied by two or three becomes useful in keeping the "wolf from the door," but these cases are few indeed, and the "wolf" might otherwise be kept at a very safe distance if the parents were more prudent and thrifty.

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I have no fancy notions about half-time. I began work in this division in a cotton factory when just turned eight years old, and worked for five years as a half-timer when I become a full-timer. My ideas, therefore, are rather of a practical than of a theoretical nature, and I have for many years now in my reports to H.M. Chief Inspector maintained the importance of considering the present position of child labour. When in the Birmingham and West Metropolitan districts I found scarcely any half-timers, and there was abundance of work that children could do just as well and as conveniently as they can piece at mules or tent at speeds in this district, and I do not know that the people were poorer by reason of the absent half-timer. I know of parents about here who have half-timers in the factories and are members at co-operative stores or shareholders in "limited companies" to the extent of from £50 to £200. Is this poverty?

Mr. Tinker writes on this subject:—

When I wrote my long report on this subject two years ago I thought that the employment of children in cotton factories would soon be a thing of the past. Such, however, is not the case. In whatever direction I go in the district of which I am in charge I hear the complaint of the inability to obtain full time little piecers, and although in many cases the employers would like to do without employing half-timers they are compelled to do so, or let part of their machinery remain standing. The following is one of the replies to my enquiries on the subject:—

"Dear Sir,

"In answer to your enquiry respecting half-timers. From the commencement of our mill in May, 1884, to May, 1900, viz., 16 years, we would not have half-timers. But during the last eight months owing to the scarcity of full-timers we have been compelled to put on half-timers or work without our quantity, being at times 20 per cent. short of piecers.

"Yours, &c.,

"*Manager.*"

In my opinion the scarcity of the full-timer is the only cause of the employment of children. Cheap labour having nothing whatever to do with the question. I know of employers who are totally opposed to child labour, and denounce it on all occasions, yet in their own factories half-timers have to be employed. Again, the employer is at more risk by employing children. I have taken four cases during the year against employers for allowing children to clean machinery in motion, and penalties have been inflicted in each case; had young persons been employed and injured, instead of the children, no prosecution could have taken place.

The Workmen's Compensation Act.

This Act is so essentially bound up with the Factory Acts, being dependent on them by reference for its definition of what constitutes a factory and employment therein, that many of the cases decided under it by the Courts of Appeal and by the House of Lords have considerable bearing on the interpretation of the Factory Acts.

I have on several occasions during the past year been consulted by architects and occupiers of cotton spinning mills as to what was considered the correct interpretation of section 9, Factory Act, 1895, which reads: "In a factory erected after the commencement of this Act, the traversing carriage of any self-acting machine shall not be allowed to run out within a distance of eighteen inches from any fixed structure not being part of the machine," &c., and whether this provision would be insisted upon in the case of *additions* to old mills built prior to 1896 where the required space did not exist. I have always pointed out that the space named was considered necessary for safety, and that if additions were made to cotton mills which did not comply with legal requirements, they must be prepared to take all consequences and responsibilities in the case of accidents occurring hereafter. A case, however, recently decided by the House of Lords would seem to have an intimate bearing on the subject, and I therefore append copy of the judgment:—

December 10th, 1900.

Workmen's Compensation Act.

"By a majority of three to two the House of Lords to-day reversed a judgment of the Court of Appeal in an important case arising under the Workmen's Compensation Act. The Court of Appeal held that the wife of a workman fatally injured while engaged putting iron stays into a completed building to stiffen it had no claim for compensation under the Act, as the workman was not employed in the construction or repair but only on the alteration of a building. The House of Lords, by three to two, held that whenever any new material is put into a building so as to form an integral part of it, a building so treated was being constructed under the meaning of the Act."

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An important decision was given by the House of Lords on December 14th, 1900, on appeal from the County Court, Liverpool. A man named William Stuart, was employed by a firm of stevedores (Messrs. Nixon and Bruce), to assist in the loading of the s.s. "Lake Superior," lying in Hornby dock. Whilst Stuart was engaged in fixing the hatches by means of a winch, the crossbeams canted and knocked him into the hold, fatally injuring him. The County Court Judge held that the widow, as appellant, was not entitled to compensation on three grounds:—

(1.) That the Act did not apply to a workman who, at the time of the accident, has not been in the same employment continuously for at least two weeks.

(2.) That upon the true construction of section 23 of the Factory and Workshop Act, 1895, the process of loading does not include the operation of putting on the crossbeams of the hatch.

(3.) That section 23 of the Factory and Workshop Act, 1895, does not apply at all to any machinery on board a ship.

The Lord Chancellor, in giving judgment in favour of the casual labourer in this and another case, added: "The second case raised a point peculiar to itself. It was said that the man, at the time of the accident, was not engaged in the act of loading or unloading because the cargo was stowed, and what the man was doing was putting on the hatches. But could anyone say that the fixing of the hatches was not part of the loading of a ship. It would reduce the Act to an absurdity; the whole operation was intended to be included in the expression 'loading or unloading.'"

He admitted that the Act did seem to be somewhat grotesque in saying that the machinery on a ship or dock was to be treated as a factory within the meaning of the Factory Act. But neither the County Court Judge nor the House of Lords had any right to criticise what the Legislature had done. It must administer the law as it stood, and if the Legislature said the machinery made it a factory they must so assume it to be. Then it was said that a person, before he could derive the benefit of the Act, must be engaged in loading or unloading from the wharf, and it was said when this accident occurred no such operation was going on. He did not accept that theory. It was contrary to the intention of the framers of the Act. "Loading and unloading" must be treated as one transaction in such a form as men of business would understand it, and, so treating it, he held that the deceased was, at the time he met his death, engaged in the act of loading. He therefore moved that the appeal be sustained and the judgment of the Court of Appeal reversed with costs. Lord Macnaghton, Lord Shand, Lord Davey, Lord Brampton, and Lord Lindley concurred.

The following judgment, given in the Manchester County Court, on the question of the 30 feet named in section 23 (2) (*a*) and (*b*) of the Factory and Workshop Act, 1895, is of interest. The case is also mentioned by Major Roe in his remarks on the Compensation Acts:—

"His Honour Judge Parry, at Manchester County Court yesterday,* gave judgment in an action involving an important point under the Compensation Act. The applicant was Christopher M'Grath, and the respondents Messrs. R. Neill & Sons, contractors, and the case resulted from an accident sustained by M'Grath whilst working as a bricksetter on some warehouses in Hilton Street, Manchester, the defence being that the building had not at the time reached the height of 30 ft. as required by the Act.

"His Honour said the question he had to decide was how the building should be measured under section 7 of the Act, and the point for consideration was, when is a building 30 ft. in height? Considering the question as to why the legislature introduced the 30 ft. test, he thought their view was to make large builders and contractors liable, and to keep outside the Act a poorer and smaller class of builders whose work lay on cottage and other small property rarely reaching 30 ft. high, however measured. He found that the second floor was the highest point of the building, and four measurements were submitted, namely, from the footing, from the top of the footing, from the basement floor, and from the level of the street. In his view the object should be to find a bottom point to measure from which was capable of being found with certainty, and which, when a principle of measurement was laid down, would leave nothing for the employer and workmen to do but take a two-foot rule and find out whether or not the building was within the Act. The street level did not give him such a bottom. No street was absolutely level, and many streets were on very distinct slopes. A building might be surrounded by different streets and different levels, and he rejected that proposal as unsuitable for want of certainty and precision, and as being an encouragement to litigation which the Act could not be taken to intend. For similar reasons the measurement from the basement seemed unsuitable. The basement of a building in course of construction was often full of

* January 21st, 1901.

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debris, trenches might be dug in it, and at no place had it in most buildings a uniform level. Either of the first or second measurements seemed to comply with the words of the Act and to give a definite measurement. He thought that from the footing to the second floor joist was the right one. He should find that the highest point the building had attained and the lowest brick of actual building, and the difference between the two was the height of the building. If he was right in this decision there were definite points of measurement, top or bottom, which left little room for litigation and dispute, and seemed to him in harmony with the intentions of the Legislature. He found, therefore, that this building exceeded 30 ft. in height, and that the applicant was entitled to 9*s.* 5*d.* a week and costs, with leave to appeal."

Major Roe (*Manchester*) remarks :—

These Acts and cases under them occupy so much of an inspector's time and thought that I hope I am permitted to offer a few remarks thereon.

That the Workmen's Compensation Act is defective in some ways may be granted, but that it is, and has been, of the greatest value to the working classes, to whom it is applicable, there cannot be the slightest doubt—for every case which is taken into Court and becomes public property, many cases are quietly settled out of Court. I will only mention two, in which I have been an adviser by request; £200 given to a girl for the loss of her arm by the cog wheels of a cylinder printing press, and £54 12*s.* to the father of a girl killed by a hoist, and very many where the inspector's advice has been solicited by both sides to obtain compensation without going to law.

A man who had been employed by a firm of gas fitters sued for damages on account of injury by lead poisoning, in the Manchester County Court, and was awarded £45. This is, perhaps, one of the first cases tried. It was brought under the Employers' Liability Act and Factory Act (failure to provide suitable washing conveniences, section 30, 1895). It appeared that only a bucket and soap, with water which had to be fetched from a distance, were provided by the firm, and the Judge gave his decision on the ground that he did not think suitable washing conveniences had been provided in this case.

The 30 feet mentioned in section 23 (2) (*a*) and (*b*) has always been a source of doubt and dispute, and therefore I have welcomed a decision, which will set at rest this mooted point (legally, unless reversed by appeal) by the County Court Judge of Manchester given under the Employers' Liability Act. Naturally each side in the dispute desired the measurement to be taken in a way most favourable to themselves (the height above the street level being 29 ft. 10 ins.), and four measurements were submitted, viz. :—

(1) From the footing to the highest point the building had attained.
(2) From the top of the footing to the highest point the building had attained.
(3) From the basement floor to the highest point the building had attained.
(4) From the level of the street to the highest point the building had attained.

His Honour, in giving judgment, said "the first two measurements seemed to comply with the words of the Act, and gave a definite measurement, and found that the highest point the building had attained and the lowest brick of the actual building were the two deciding points, and the difference between the two was the height of the building, and that therefore this building exceeded 30 feet in height, and the applicant was entitled to his half wages.

Mr. Walmsley (*Stockport*) writes :—

It is gratifying to find that the study of first aid is extending in our industrial centres. Some years ago I dwelt on this subject; at that time classes had just been formed in numerous centres. These have now been increased, and "brigades" have been established in Stockport and Macclesfield. The students there meet periodically, and go through a systematic drill in first aid especially for accidents. Depots will also be established in different parts of the towns where, the members (who are largely employed in factories) can obtain all reasonable stores for the injured. Seeing that upwards of 1,750 accidents were reported to me during 1900, I trust the time is not far distant when one or more of such members will be found in every works, and that each employer will feel it to be his duty to assist and encourage such an organisation.

I am, &c.,

H. S. RICHMOND,

H.M. Superintending Inspector of Factories.

March 31st, 1901.

H.M. Chief Inspector of Factories.

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SCOTLAND AND IRELAND DIVISION.

REPORT OF THE SUPERINTENDING INSPECTOR.

March 15th, 1901.

SIR,

I HAVE to forward my annual Report for the year 1900.

General Survey.

The conditions of trade and industry throughout the division of which I am in charge have been somewhat variable, the tendency being on the whole downwards. The earlier months were in the majority of trades distinguished by great prosperity, which fell off however as the year advanced, and have been exchanged in a few instances for even a contrary state of things. In others the decline, though continual, has not been very strongly marked, and in some slight traces of a revival may be now perceived. Speaking generally, those industries most closely related to mineral production have suffered most, owing to the high price of fuel; and those to which this item is of comparative unimportance have been least affected. Coming to details it may be said that the iron industry of Scotland has marked a decided decline, and the textile, and in particular the linen and allied, industries of the north of Ireland are for the most part in a like case; that the woollen trade throughout has experienced vicissitudes; whilst the jute industry of Dundee and neighbourhood has been exceptionally good.

In both countries (Scotland and Ireland) shipbuilding continues prosperous, and brewing, papermaking, and pottery and chemical manufacture rather the reverse. Of minor occupations, all those connected with building operations, and with toolmaking and engineering, have been active, whilst those purely concerned about ornament and dress have been less so than last year. The feverish demand for war literature has kept the printing offices fairly busy, in spite of the otherwise depressing influence which warfare exercises on a demand for literary commodities; and certain special industries engaged in the production of foodstuffs and wearing apparel have felt the influence of the same stimulus. In Scotland the distilling business shows some signs of revival, and in Ireland the creamery industry continues to thrive.

Administration of the Law.

Last year I gave something like a description of the character of this Division in reference to the difficulties encountered in the administration of the law throughout it. This description was mainly concerned with its geographical and racial peculiarities in that connection, showing the extensive area it covered, and the variety of populations comprised within it. It was pointed out that systematic inspection under such circumstances was more difficult than ordinary, and a firm attitude was above all things necessary to securing compliance with factory regulations. More than one circumstance that has come to my knowledge during the present one has recalled this statement. These will be detailed in their appropriate places; in the meanwhile I have to report with satisfaction a decided diminution in the number of offences on the whole returned for prosecution, and consequently of the number of prosecutions taken. This diminution is, however, confined to Scotland. In Ireland there is a slight increase. The moral to be drawn from this divergent result, and certain interesting sidelights cast thereby upon the whole subject, will appear in the sequel.

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Accidents.

The original intention of factory legislation was exclusively moral and sanitary. It was not until it was nearly half a century old that the obligation to fence machinery was cast upon employers, and only then in relation to the employment of juvenile workers. Similarly its educational provisions were only a comparatively late and casual accretion to it. For a long period until lately, and after the primary purposes of a limitation of the hours of labour and some elementary hygienic conditions had been fulfilled, this latter was regarded as of chief importance in its administration. But with the passage of the Elementary Education Act, and its successful working throughout the kingdom, attention began to be diverted from this sphere of usefulness, as it had long since been diverted from the purely moral sphere, and to be fixed more on the possibility of affording greater protection to the operative in the actual performance of his work, of ameliorating his physical not less than his moral and intellectual lot. Nothing is more curious in the history of these laws than the way in which they have constantly branched out in unlooked for directions, now at one time now another, in obedience to some benevolent impulse the immediate origin of which it is not always easy to trace. Accordingly, within the last few years it has become the custom to assign a place of principal importance to those of their provisions concerned about the prevention and classification of industrial injuries. Nor has this tendency apparently yet reached its limit. Not merely accidents proper, that is such as are produced by machinery used in manufacture, or from some unlooked for cause closely related to the productive process, are now under official supervision, but such as occur within a factory or workshop from any cause whatever, and many outside them (or in places at least included under those designations principally on this account), till at length even disease has come to be considered as an "accident" of occupation in certain cases, and the same system of official enquiry applicable to other casualties to be applied to it.

This wholesome extension of the sphere of legislation has not been unattended—as indeed is but natural—with some difficulty. The wide signification that is now given to the term accident, combined with the statutory requirements as to which kind require to be reported to both the inspector and certifying surgeon and the inspector only, have produced some confusion in the minds of employers, while its prolongation into channels of industry far removed from the ordinary conception of either a workshop or factory has been received with incredulity in some instances, with actual opposition in others, and with apathy in a large number. That such places as docks, wharfs, and quays, and buildings of various kinds should find a place within the term factory is, indeed, a novelty of so considerable a kind as to require some time to assimilate. Unfortunately, the wording of the sections which deal with reporting of accidents has not tended to lighten the difficulties of the situation thus created. However precise and appropriate that wording may be it has undoubtedly proved a considerable stumbling block to the lay mind. Several of the inspectors have drawn my attention to this matter from time to time, and complaints from both employers and certifying surgeons to the same end are frequent. Mr. Brown, one of the inspectors in the Glasgow district, does so, for instance, on the present occasion, exposing some of the difficulties experienced by the former in putting the right interpretation on the statute. Writing retrospectively, he says :—

> Many occupiers of factories did not realise the meaning of Section 18 of the Act of 1895. Some were under the impression that only accidents which prevented the person injured from returning to work within three days should be reported, while others thought that a fortnight was the legal period. A still greater number had the idea that only those accidents which had been caused by machinery should be reported.

Still others, it would appear (see a subsequent report by Mr. Robinson on page 318) have considered they would best safeguard themselves by reporting not only to the inspector but to the examining doctor every accident of every kind, and leaving him to discriminate among them, thus not only adding greatly to the labours of this Department but often despatching the certifying surgeon on a useless and uncalled for journey.

Such difficulties of interpretation are obviously a barrier not merely to the administration but to the due comprehension of the law, and no effort ought to be spared in surmounting them: in the interests of inspectors, of employers, and employed alike.

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Fencing.

Proceeding now from the consideration of accidents themselves and the way in which the law deals with them to modes of their possible prevention, a wide field of action is disclosed. It is upon this point that the inspectors of this Division have furnished me with the most abundant details, and upon which it would appear consequently—as indeed has been already suggested—that their energies have been mostly concentrated during the past year. In making a selection from the considerable material thus accumulated it will be my effort less to group the accidents in any established order than to recite the circumstances of some which appear to have special interest or significance, and especially in cases where they are accompanied by proposals for their amelioration. In this way it seems to me I may turn those materials to best account. Their efficient tabulation will be found elsewhere. What will, I fear, appear odd is, that in spite of all care, attention, and ingenuity expended on their diminution the number, both relatively and actually, goes on increasing: the closer they are supervised the more supervision seems necessary: a result disheartening indeed were it not susceptible of explanation. On this point Mr. Robinson, H.M. Inspector for the Glasgow district, writes as follows:—

> The total number of accidents that have been reported to me during the past year amounts to 6,814 as compared with 6,604 in 1899. The fact that there should be an increase of over 200 is somewhat remarkable considering that the size of the district has been reduced to some extent and also that trade and employment were no better, if as good in 1900 as in the previous year, and I can only account for it in two ways, viz.:—that every year the requirements of the law as to reporting accidents are better known, and also that I have found that some occupiers, to keep themselves safe, report every accident however trivial that occurs; it is of course quite impossible to tell from the reports themselves in all cases whether the injured person was off work the full five hours necessary to bring the accident within the terms of the Act, so that no doubt a certain number of these accidents are included in the total for the year.
>
> Of these 6,814 accidents 97 proved fatal; this is a satisfactory decrease and bears out the fact that the total increase above alluded to is probably due to the more careful reporting of slight accidents.

The reasons given here are undoubtedly the true ones, and it will be seen they are in accord with observations previously made in the same connection.

Saw Guards.

As was the case last year the attention of the Inspectors seems to have been much given to the subject of a competent guard for circular saws. There is scarcely a district from which observations and suggestions as to these are not forthcoming, accompanied in many instances by excellent diagrams. These accidents are not often fatal, but they are commonly of a very distressing kind, owing to the extreme rapidity with which the saw revolves and the jagged nature of the wound that it inflicts. Generally, employers are found willing to affix proper guards when their utility has been demonstrated to them, but in a few instances this has not been the case, and, on accidents occurring, successful prosecutions have been taken. Mr. Buchan, Junior Inspector, reports one of these in the Glasgow district, which may be quoted here for the sake of the accompanying remarks. He writes:—

> The most glaring case, that came under my notice during the past year of an accident directly attributable to the want of a guard, happened at an unfenced circular saw in a Clyde shipbuilding yard. The man who was "taking off" at the back of the saw accidentally let fall upon it a piece of wood which was hurled with great violence against the sawyer causing internal injuries. This accident could not possibly have occurred had there been some protection to the top of the saw, and, as the firm had been previously instructed about guarding circular saws, prosecution ensued.

Mr. Lauder (also Junior Inspector in the same district), sends information of another, together with some interesting observations of a general character on this subject:—

> There has been a large increase in the number of circular saw accidents during the year 1900, 161 being reported as compared with 129 last year. This I do not consider at all as alarming as at first sight it appears, for since saw guards have been introduced (in many cases

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after prosecution) workmen and foremen, as well as managers seem to take a delight in collecting accidents, which, however trivial in nature, they report, and triumphantly add that the saw was guarded at the time the accident occurred. It is noteworthy however that nearly all the more serious accidents occur at the front or cutting edge of the saw or from saws not already provided with guards. It is a very rare occurrence to find an accident happening now at the back of the saw if a suitable ring knife is provided with the guard.

In one large works I found that the manager and partners were most vigorous in their refusal to guard the saws and, after trying in vain to persuade them to comply with my instructions, I was compelled to prosecute. I was pleased to find shortly afterwards that every saw in the works was properly guarded, and now after three or four months trial the men declare they would not work without them.

Captain Kindersley (*Edinburgh*), forwards two photographs "of a very strong and serviceable saw-guard made by Marshall and Duguid, 15 Dock Street, B'oness. It is in use"—he says—"in all the saw mills in that town and is fully appreciated by both employers and workmen. Many of the advertised guards", he adds "are disapproved of by employers on account of their want of stability and strength." This guard too "has the exceptional advantage of being inspected from the roof of the saw-mill, thus leaving the bench quite clear".

Mr. Brown (*Glasgow*) reports :—

I found during 1900 these tools productive of many accidents, all of which happened at the front of the saw. Saw-guards are now in general use in the district, and it is satisfactory to find that they prevent the occurrence of the more serious accidents caused by persons falling upon the saw, or by pieces of wood being thrown from the back. Many workers still stoutly declared that guards are a source of danger, but in no case have I come across an accident which could be attributed to the use of a guard. The only part of the saw that a good guard does not protect is the cutting edge, and this defect is one which, unfortunately, is not likely to be remedied.

Mr. Robinson (*Glasgow*) :—

Special attention has been given to circular saws, and a great number of guards have been fitted. It was found necessary to institute prosecutions against five firms for failing to have their saws guarded : these were the first cases of this kind in the district, and two of them were contested on the ground that the men would not use guards and that the machines were quite as safe without them ; convictions followed in all cases, and it is now very well known in the district that circular saws must have guards attached. Personally I am inclined to favour the simpler kind of guard which only attempts to protect the back and top of the saw ; I find the workmen are much more ready to work with these and you do not see them so frequently taken off or swung aside as is the case with so many of the supposed automatic guards which try to protect the front cutting edge of the saw, a point which I do not believe can ever be effectually protected. I am glad to be able to report that in many cases where saw guards have recently been fitted we have received gratifying testimony to their worth.

Mr. Arbuckle (*S.W. Scotland*) :—

I am glad to say that guards to circular saws have been taken up by the manufacturers in this district and but a few accidents have occurred during the year from saws which ought to have been guarded, those occurring being chiefly at home-grown timber saw mills, where the guards are least practicable. Several severe accidents have occurred at these however, caused by hands slipping off green bark of tree whilst being sawn. In several saw mills owned by owners of estates I have seen guards over the saw blades, such as protect persons from falling on to the saw. Other manufacturers where accidents have occurred have acknowledged a guard might be suitable after explanation of their principle, and promised to get one tried. I have no pity for these manufacturers, as a guard somewhat similar to Parkinson's model could be easily fitted, and be without inconvenience to the workers if carefully used. This cannot be enforced in the face of a recent circular to these timber mills, but only suggested ; still to reduce the chance of accident a few firms have begun to move in this direction.

Planing Machines.

In the same category, though not of a like nature with accidents occurring from saws are those occurring from planing machines. The blade of a planing machine revolves with astonishing rapidity, so fast as to be often actually invisible, and protrudes but half an inch or so above the table upon which the material to be operated upon is laid. The result is that terrible accidents often ensue when this tool is unguarded. Formerly, as it appears by a report from Mr. Arbuckle, H.M. Inspector for the South

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West of Scotland, it was usual to send out these machines already fenced, but this has been discontinued. He says :—

> Surface planing machines have been having my close attention. Many of these machines I found unguarded, but on requirements being explained have got them fitted. I am much surprised to see employers leave these machines unprotected, knowing the severe nature of accidents likely to arise from them, and I think the makers of them are largely to blame for their being sold without an effective guard. In the past they seemed quite content to supply a small cast-iron plate, which was screwed on to the table and covered partly the opening for knife; this I consider an ineffective guard, as when at work the man needs to be protected over the opening where knife is open to table surface. Nothing is so effective and acknowledged by workmen to be so as the sliding and rising guard so well known to the staff.

In the same connection, Mr. Newlands, H.M. Inspector for the North of Scotland, finds "there is a tendency among occupiers to do away with older guards and adopt the 'boomerang,' a simple, cheap, and ingenious method of fencing this dangerous machine." Mr. Lauder (Glasgow) furnishes the following report and illustrations :—

> These dangerous but ofttimes neglected machines have been responsible for 44 accidents during the past twelve months, and as the knives revolve at a speed of about 4,000 revolutions per minute, one can understand what damage they are capable of doing when a man's fingers or hand comes in contact with them. In investigating accidents which have occurred at these machines, I have found that in most cases the worker has had to lament the loss of two or three fingers, and in two cases which came directly under my notice the whole of the left hand was cut off. The difficulty here is that there are so very few guards of any kind for these machines, partly due, I think, to the fact that special notice has not been given by our department that guards are necessary, as was done in the case of circular saws. I enclose, attached, an illustration of a guard for a surfacing machine which has lately been introduced in this district, and which I find works very satisfactorily.

This guard is also spoken of with approval by other Inspectors.

Mr. Robinson (*Glasgow*) reports :—

> Surface planing machines and cog wheels have been very extensively guarded, but there seems no chance of reaching any finality in this respect until all machinery is sent out guarded by the makers; occupiers putting in new machinery, or altering the position of their machines, seem in most cases to wait till an Inspector calls before doing the necessary fencing, but I am glad to say that when what is required under the Act is pointed out it is as a general rule very willingly done.

Textile Machinery.

There is a marked absence from the reports of the Inspectors of this Division of allusions to accidents produced by textile machinery. This is the more gratifying, inasmuch as these, and especially such as were caused by flying shuttles, were particularly prominent until quite lately. The incessant efforts of the staff seem in this instance at all events to have been crowned with genuine success. Most looms, both in Scotland and Ireland, running at high speed are now fitted with shuttle guards, and the conditions of labour in weaving sheds is greatly ameliorated thereby. In some other instances, presently to be noted, there is still a good deal to be done, but in this one the good result is already practically achieved. Mr. Wilson (late of Dundee) is almost the only Inspector who deals at any length with this matter, but his remarks, which apply principally to the jute and linen industries, are well worth quoting in full.

Mr. Wilson says :—

> I was much struck on first taking charge of this district (five years ago) with the manner in which certain types of accidents constantly occurred in various factories, but always with the same machine details. In going carefully into the matter, I found that simple but efficient guards could in most instances be adopted without difficulty, which would at least reduce the element of danger. This policy of insisting on effective guards wherever accidents had pointed to their desirability has been followed for five years with moderate success. Having almost all the jute manufactories in the United Kingdom in my district, and also a large proportion of the flax spinning and weaving factories, industries which employ very similar machinery, unique facilities were afforded me of studying the points of danger peculiar to each machine, and in considerable detail. Thus by the universal adoption of travelling feed and delivery sheets or webs for jute softeners a type of accident in certain instances fatal and always very severe has completely disappeared. These sheets were not adopted without protest by certain manufacturers but I have not heard the slightest complaint or objection to them for the last

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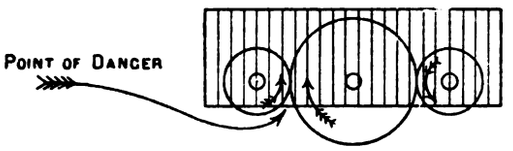
two years. It may here be explained that formerly the fibre was thrown forward by the attendant on to the feed table, the extreme points catching in the ingathering and rapid running fluted rollers. If by any chance the operator's hand was entangled in the long wisps of fibre, the victim was dragged forward and the hands and arms mangled before the machine could be stopped. The long travelling web obviates this, as the fibre has simply to be thrown upon it and is automatically fed into the rollers. The same arrangement holds good for the delivery end of the machine. The cure is simple, inexpensive, and, if possible, facilitates the work. Perhaps this is the most successful safety appliance it has been my privilege to suggest and see adopted. All new machines are now fitted with it by the makers.

The following details of jute and flax machinery have been recognised in the past as particularly productive of accidents :—

The delivery roller wheels of "breaker" and "finisher" cards, the "doffers" of "breaker" cards, the delivery roller wheels of drawing frames, the "elbow" motion wheels of driving frames, the draft gear of spinning frames, the friction motion of dressing machines, the gearing of calenders, and the pinions and chains of sack sewing machines.

The delivery roller wheels of cards and drawing frames, although to all appearance well guarded when sent out by the makers, proved themselves particularly dangerous, as the fencing gave a false impression of safety. The following rough sketch shows exactly what I mean, the particular form of fencing being unfortunately too often met with in modern machines of all descriptions :—



I have frequently observed that youthful workers, if stationed at one particular part of a machine, are very apt to tamper with the portions, whether stationary or in motion, in their immediate vicinity. Accordingly, more than usual care was exercised by me in covering all conceivable points of danger in such circumstances.

The above remarks apply particularly to such pinions as have been referred to, their position being such that an operative could with great ease approach them for the purpose of cleaning or lubricating. A close fitting guard under the up-running portions, however, makes such gearing perfectly safe.

The "elbow" motion wheels of roving frames constitute a particularly deceptive form of danger.

The pinions are carried on studs screwed to a radial arm, which moves in a vertical plane and just inside the gable of the machine.

A fine dust or "fluff" readily accumulates in the vicinity of this particular motion, and at times partially covers the wheels. An ignorant or unsuspecting person, in attempting to pull out this dust, frequently was caught by the up-running wheels and the hand or wrist badly lacerated.

By simply filling in the opening in the gable of the roving frame with a panel of wood or sheet iron the danger has been entirely removed.

The "draft" wheels of spinning frames, a prolific source of accident in the past, were easily fenced by a specially constructed shield of cast iron.

The same may be said of the gearing of dressing machines and winding frames, and now accidents from the above mentioned sources are extremely rare.

The "doffers" of "breaker" cards were the means of destroying the hands and arms of several youths. "Doffers" are covered with steel hackle pins, and run at a fair speed. In picking the revolving brush, which runs in front of and parallel to the "doffer," an attendant standing on a polished metal plate, in the event of a slip, has nothing stationary to seize hold of, and runs the great risk of being caught by the steel pins and severely lacerated. In most instances, when this happened, the elbow suffered to such an extent as to require amputation of the arm. The adoption of a simple hand-rail, running in front of the "doffer," has, so far, resulted in an entire stoppage of this type of accident.

Shuttle guards are now universal in jute and linen (with the exception of damask) looms. I have had frequently, however, to remonstrate with occupiers for allowing the guards to be tied up by the weavers, and for neglecting lubrication of the bearings. The brass sockets which support the guard if not periodically oiled soon become eaten into by the constant oscillation of the loom slay. When this happens the efficiency of the guard is impaired and the steel wire tends to injure the weaver's fingers.

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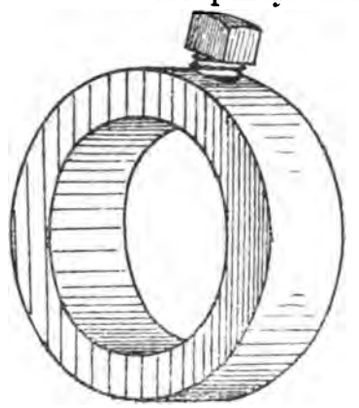
Shafting.

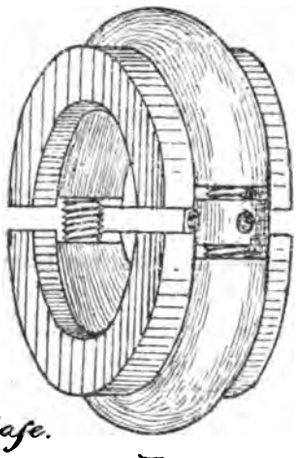
That very deplorable class of accidents, both in textile and non-textile factories, that proceeds from unguarded shafting does not occupy so conspicuous a place this year either. It was necessary last year to direct special attention to these accidents on account of some grave instances of injury that were brought under my notice, but in point of fact they are, and should be, an ever decreasing quantity. The superior structure of modern factories, and the better education of those frequenting them, tends ever towards their elimination, even if that desired consummation be still a long way off. The difficulties to be faced now are not so much the situation of the gearing, as formerly, but rather some small defects still retained about it, and the perennial one of the utter recklessness of workmen. You may erect your shafting at any height from the ground, or you may place it altogether underground, and give the strictest orders that nobody shall go near it; but what is the good of all this if for some paltry purpose which may or may not be connected with manufacture at all a workman will crawl in among it or climb up a ladder to it? And just these are the commonest causes of accidents. Thus Mr. Buchan relates of an accident that occurred at Alloa, how, "a man while limewashing the ceiling got too near a revolving shaft, round which his apron lapped, with fatal consequences. At the accident inquiry (that ensued) the jury strongly recommended that where there was any possibility of danger, and it was impossible to fence the machinery, then the limewashing should only be done while the machinery was at a standstill." He adds, "Unfortunately this is not an isolated case, and I should like to see the principle in the jury's recommendation embodied in the statute."

Another fertile cause—to which I have heretofore drawn attention—is the retention of small prominences in the belts and on the pulleys and other parts of the gearing.



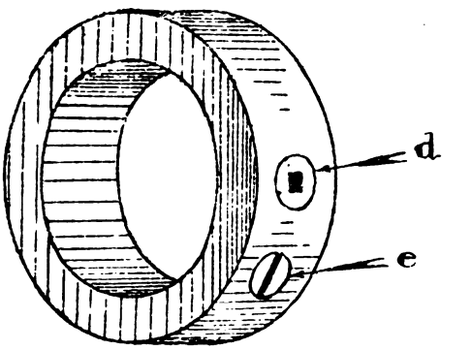
Dangerous Type.

A



Safe.

B



Safe.

C

All such prominences should be cut off or countersunk. Sometimes they will be of a character where this cannot be easily done, but generally their removal is quite simple. Mr. Lauder sends some observations on this matter, accompanied by sketches, which may, I think, be found useful. He says :—

Loose Collars for Shafting

Several accidents which occurred during the past year point to the dangers incurred by allowing projecting setpins to remain in collars on shafting. A workman may go up to put on

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a belt or oil a journal, his clothing is caught by the projecting setpin, and he is whirled round and round with the shaft, sustaining serious, and in many cases fatal, injuries. I have invariably condemned projecting setpins on shafting, and insisted on having flush pins as shown at *d* and *e* in sketch C. In several instances lately I have seen a new safety collar in use, and as it seems to meet the case I have given a sketch of it above at B.

The best makers of new machinery are, I believe, giving increased attention to this point, and there is no doubt their clients will be the gainers.

Hoists.

On the other hand, there seems to have been an increase of hoist accidents; and here again I am indebted to Mr. Lauder for some apposite observations, accompanied by a sketch. He fails, however, to take notice, I think, of the greatly increased number of hoists used now in industrial establishments. Possibly if we had the full means of comparison between this and any former year we should find that proportionately to the number of hoists in use and the number of persons using them the increase of accidents had been more apparent than real. He writes:—

I regret to state that there has been an increase in the number of hoist accidents during the year, 8 fatal and 60 non-fatal accidents having been reported, as compared with 1 fatal and 43 non-fatal accidents during 1899. Personally, I have investigated a great number of these accidents and I find that in most cases the accident might have been prevented by proper fencing. It is worthy of note that these accidents as a whole may be divided into three classes:—

(1.) Where worker leans over a cross-bar fence or low hoist gate and is crushed by descending cage of hoist.

(2.) Where worker is ascending in cage of hoist and is crushed between floor of hoist cage and lintel of doorway or top of window recess.

(3.) Where worker foolishly attempts to jump into or out of hoist cage when in motion.

The first class of accident may be prevented by having the hoist gate made at least 5½ feet in height so that the worker cannot lean over it. In no case do I approve of a cross-bar fence for a hoist doorway, and whenever I find such a dangerous contrivance I insist on having it replaced by a proper gate. To prevent accidents of the second class occurring it is imperative that the hoist well should be fenced in such a way that as far as possible it is free from projecting beams or recesses of any kind. All ledges should be bevelled so as to prevent the passenger's foot being crushed when hoist cage is ascending and all window recesses should be covered by a frame covered with strong wire netting. Again, I always insist on having the space between top of gate and lintel of doorway covered in with strong wire netting, placed so as to be flush with inside surface of hoist well and of course allowing height for head room.

The third class of accident may be prevented by having in all cases, where possible, a proper hoist attendant with the gate fastened on the inside only, so that it can only be opened when the cage of the hoist is opposite the doorway. In works where every apprentice is allowed to use the hoist it is only to be expected that accidents of a serious and distressing nature will surely occur.

Mr. Buchan (*Glasgow*) reports:—

Still another example is furnished from a Leith factory with a large modern hoist. The cage was decending with only one man in it when it suddenly fell to the bottom of the hoist well, owing to the top pulley shaft, which was 3 inches in diameter, giving way through an internal flaw. The patent catches that were supposed to secure the cage should anything go wrong failed to act, and the broken pieces of top shaft crashed through the roof of the cage and broke the man's leg. A periodical examination of hoist gearing by a competent engineer would be a splendid precautionary measure.

Blast Furnaces.

Mr. Arbuckle (*S. W. Scotland*) sends the following:—

Six fatal accidents occurred during the year, two in blast furnaces. The men were employed inside of furnace clearing the ashes out previous to its going under repair and relining. The men had gone in through the tuyer holes early in the morning and were shovelling the ashes through same, when suddenly a mass of red-hot ash fell from side or top of furnace and embedded the men, causing severe burns from which they died within a few hours. The furnace was of the ordinary blast furnace construction, and it is thought that the ashes were either adhering to the side of furnace or had got embedded in the dome of bell cover. At the public inquiry the jury recommended that these furnaces be more carefully inspected, top and sides, by a responsible person before any one is allowed to enter them. I think there had been undue haste in the endeavour to clean out the furnace.

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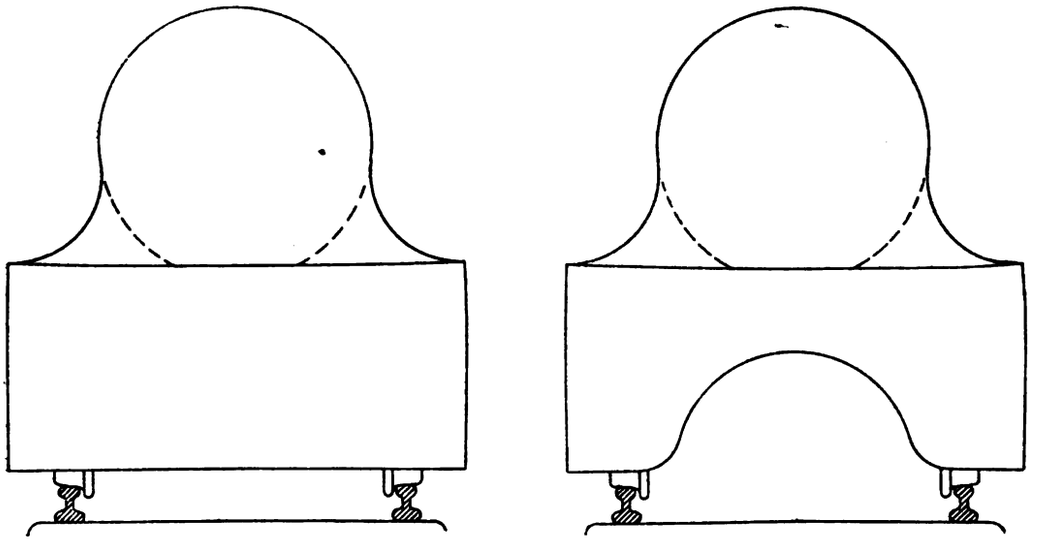
Locomotives.

Mr. Arbuckle :—

One fatal accident occurred by a steam crane and shunting locomotive (combined). The engine was shunting several waggons, the injured person was employed to couple them, and though supplied with a coupling rod for this purpose, and had same lying on the shunting engine at his hand, he failed to use it, but went between the waggon and engine, when a crossing rail caused him to stumble and locomotive buffer-plate caught his legs. Many of these shunting locomotives have the buffer-plates, both back and front, almost down to the rail so as to enable them to push all sizes of trucks ; here the danger lies, if employees carelessly go between engine and waggon when engine is in motion and stumble the plate is certain to cause fatal injury. I have suggested that these buffer-plates between the rails be kept recessed so as to be less dangerous should a person unfortunately be struck by the engine. Sketch A explains the danger and remedy. Coupling rods for shunters I strongly press on every firm when shunting has to be carried on in or about a factory.

CRANE AND SHUNTING LOCOMOTIVE COMBINED.



Dangerous. *Dangerless.*

Grindstones.

Mr. Lauder (*Glasgow*) writes :—

The number of accidents which have occurred at ordinary grindstones is remarkable. These grindstones are used solely for grinding and sharpening tools in engineers' and joiners' shops, &c., and are used by any and all of the workmen. The accidents generally happen through the tool catching the stone and so jerking the man's hand in between rest and grindstone. I give a sketch of a safety grindstone rest which prevents accidents of a serious nature occurring in this way. At the instant the man's fingers get between the rest and grindstone he naturally pulls his hand quickly away and at once brings the rest into position shown in sketch 2, thus releasing his hand immediately.

Lathes.

The same :—

Over 110 accidents have occurred at turning lathes during the past year, thus showing no appreciable diminution from the number placed on record during the year 1899. A great number of these accidents were due to the worker's hand being caught between the cutting tool and the job in the lathe, some were caused by projecting set pins on sockets of boring lathes, and a great many were caused by the spur and change wheels. The projecting set pins are being in most cases replaced by countersunk pins and the spur wheels can be properly guarded when necessary. In every case where I find a passage way at the gear end of a lathe I insist on having the change wheels properly fenced.

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Mr. Arbuckle (S.W. Scotland) :—

Bakehouses.

There seems to be an increase during the year in the accidents caused by the dough rollers in factory bakehouses. Four cases occurred in which the workmen when placing dough into rollers got fingers injured, and in one case loss of hand. Suggestions have been made to have some protection roller, similar to those in front of a wringer, or chaff-cutter style, which is loose, and can rise and fall easily as dough passes through, the accidents chiefly being caused by the man allowing his hand to get too near intake of roller, and, turning away to give directions the hand, unconsciously goes forward with the material. The accidents are generally serious accidents, and mean heavy compensation and loss of man's trade, that I am surprised the employers and makers do not strive to lessen the danger. Another thing in these machines is having them placed where the light is ample, as they are generally placed in some odd corner, or where the light is defective. The rollers are reversible, one side the light is good, and the far side defective, so that the workman is generally caught where the light is dim. At the present time I am in correspondence with two manufacturers in Scotland on this point, and hope some good may result, and an efficient protector be constructed.

Mr. Wilson (Dundee) :—

Accidents from Cleaning.

There have been 45 accidents in the Dundee district during 1900 from cleaning or attempting to clean machinery in motion. This is slightly less than last year, but in my opinion does not constitute the whole, as from the reports it is at times difficult to ascertain whether cleaning was proceeding when the accident happened or not.

Unaccountable as it may seem, there appears to be a certain impulse among women and young persons (the latter especially) to pick off, or attempt to, particles of fibre which have coiled round or adhere to small rotating shafts, or are resting on horizontal surfaces in close proximity to dangerous toothed gearing. Most of the serious accidents have been brought about in this way, one or more fingers being so damaged as to require amputation.

The multiplication of printed notices in factories forbidding this practice is productive of little result, and will, I fear, remain so if no special time is set apart through the week for cleaning purposes. Nominally from 1 to 1.30 p.m. on Saturdays is the recognised period, but almost every worker contrives to have the machine for which he or she is responsible sufficiently clean to allow of their leaving the works at a few minutes after 1 p.m. It is obvious how this is accomplished, and in connection it is an interesting fact that most of the cleaning accidents occur on Saturdays. It would be productive of much good were children and workers of immature years carefully instructed by some competent person when they commence factory labour as to the dangers to be avoided in certain machines or machine movements. Were this done to a larger extent by employers, these youthful workers, whose indiscretion must be assumed, would not so often be handicapped for life through losing, say, part of a hand, a loss which no money payment can ever quite compensate.

In my experience as an inspector I have frequently remarked amongst juvenile workers an astonishing ignorance of the construction and dangerous points of machines which it is their duty to attend.

When one considers, however, how difficult it is to convince an ordinarily intelligent person that a perfectly plain rotating shaft, for instance, is dangerous, the ignorance of little children seems quite excusable.

The only possible means, in my opinion, of successfully combating this evil are, first, to make the stoppage of machines for a few minutes compulsory, to allow of the gearing and stationary portions near gearing being properly cleaned at least once a week, and before noon on Saturdays; secondly, to insist on strict supervision by foremen or overlookers in each department; and lastly, to aim as far as possible at the entire closing in of toothed gear by close, polished metal guards, cutting off access to the wheels from any point whatever.

The guards on certain new textile machines are approaching this ideal.

Diseases of Occupation.

Within the second category of accidents required to be reported to the Inspector and Certifying Surveyor are those proceeding from diseases contracted in the prosecution of unhealthy occupations. Many of these occupations are now subject to special codes of rules, and much care is taken in rendering their environment as little injurious as possible. Where points of particular interest arise they are investigated by the Medical Inspector; and it will probably suffice if I record here only the general results that have been furnished me from a few districts where these occupations are found.

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Mr. Robinson (*Glasgow*) writes :—

Poisoning Cases.—Twenty-one cases of poisoning contracted in a factory or workshop were reported during the year ; of these seventeen were due to lead and four to anthrax. None of the lead cases were very serious. Of the anthrax cases the first was that of a woman employed in a hair factory ; she had only worked in this place ten days, and the hair she came in contact with was all said to have been dyed and boiled for eight to ten hours. With the exception of a little Russian hair on the first day of her employment, she had worked entirely at American hair. Previous to coming to this factory she had been employed in another works of the same kind, so it was difficult to say in which place she had contracted the disease. The next case also occurred to a woman employed in a hair factory, and proved fatal in two days. On the day following this woman's death the carter employed by the firm to deliver manufactured hair to customers was taken ill ; it was found to be a case of anthrax, and he was immediately operated upon and recovered. A few days later a young woman employed in a furniture shop in Glasgow was taken ill and died, anthrax being shown to be the cause of death. On investigation it appeared that hair from the factory just referred to above had been conveyed to this shop and taken up in the hoist through the furniture warehouse to an upholstery warehouse above, and that this woman had swept out the hoist. The curious feature of these two last cases is that neither of the persons affected had came in contact with any hair that had not been through all the manufacturing processes.

The other fatal case reported was that of a young man employed as a brushmaker in a brush factory, but how he came to contract the disease could not be very clearly shown.

A rather curious burning accident occurred at the bisulphide vulcanising machine in one of the india rubber factories in the district. The machine, in accordance with the special rules applying to this process, had recently been covered in, there was also a fan connected to it producing the regulation down draught, but the fumes appear to have collected to an excessive extent in the covered chamber, and suddenly becoming ignited caused an explosion, which wrecked the fan ducts and woodwork of the machine and somewhat seriously burned the two men working at it. Mr. Osborn reported upon the case from particulars supplied by Mr. Lauder and myself, and he came to the conclusion that the fan arrangements were not satisfactory, the ducts being too small.

The same :—

Bichromate Works.—New rules were established early in the year in works in which bichromate of potash and soda are manufactured.

In the largest factory of this kind in the district it was found that the existing bath and lavatory accommodation were quite inadequate to meet the requirements of the rules ; the firm have, however, been erecting very extensive buildings to provide bath, lavatory, dining and cloak rooms, and these are now just about completed, temporary accommodation having been in use in the meantime.

In the other two works of this kind the rules are very satisfactorily observed.

Again :—

Lucifer Match Works.—New rules have also been established during the year in lucifer match works.

There are two factories of this kind in Glasgow, and we have paid a great number of visits to both places, to give information and explain the requirements of the rules, and to report on the degree of observance arrived at. Very considerable changes had to be made in the way of mechanical ventilation, and I regret to say there was a good deal of delay in getting this work commenced. In one case, after the necessary plans for the alterations had been submitted to and approved of by the Home Office, the firm failed to have the work executed in complete accordance with the plans, and I have had to call upon them to have the necessary alterations made to comply fully with the rules.

The compulsory examination of teeth by the appointed dentist has been very much resented by the workpeople, especially by the women and girls ; at one factory some of them struck work and remained out for a day or two, and the occupiers have experienced very great difficulty in getting them to present themselves for examination, and have their teeth put right when found defective, in which condition most of them appear to be.

The rules, on the whole, introduce so many important changes in the factories that some delay in getting them fully complied with is not altogether to be unexpected.

Mr. Arbuckle (*South West of Scotland*) reports :—

Chemical Works.—During the past year this trade in the district has been in a very bad state, and works have almost been at a stand for want of orders. Two of the largest works have been stopped since May, and one of these works at present only makes sulphuric acid.

On the whole the special rules have been carried out, but I should like to see more attention given in the future to Rule IX., as I often think that this respirator wants attention at least once a week. In chemical works I find the men are not over attentive to necessities, and when these things are wanted, possibly found to be out of order. This has been strongly pointed out to firms, and to the great necessity of close supervision of this section.

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During the year two fatal cases occurred in one of these works, reported to you at time of fatality, caused by the Weldon still, which by the able investigation of H.M. Medical Inspector we were able to prove at the public enquiry arose from the manufacturing process. The men were employed to clean out the Weldon still, which was of the usual construction, but without manhole on or near the bottom. These men after being in the still for a short time, though fitted with the general rudimentary respirator of plies of flannel bound together, complained of a sweetness in the mouth, and within a few hours compelled to take to bed, lingered on for several days with a trouble the doctor in attendance considered as a form of jaundice. The first man died in January and the second in April, both of whom were employed at the same work in cleaning the Weldon stills. Arseniuretted hydrogen, caused by the arsenic in the sulphuric acid (made from pyrites), blended with the use of iron shovel and pail when cleaning the still, combined to free the hydrogen which was breathed in spite of the many ply flannel respirator. Manhole doors for ventilating these stills have been cut near the bottom, and wooden shovels are now used to clean the refuse away.

With the exception of the aforesaid cases, I have had no report of illness arising from process of manufacture in these chemical works during the year. The firms have now got the special rules affixed, and with the visits every three months being made, a much needed improvement should be forthcoming on the fulfilment of the rules by the workers.

Mr. Bellhouse (*Dublin*) reports "great improvement" among the places in his district where dangerous trades are carried on. From the north of Ireland there is no information in regard to cases of an exceptional character.

Mr. Brown (*Junior Inspector in Glasgow District*) sends the following :—

Galvanising.—An accident of an unusual nature occurred in the galvanising department of a large shipbuilding yard on the Clyde in January. One man is left in charge of the furnaces on Saturdays, and on this particular day a foreman and several workmen returned at night to carry out some repairs. The foreman entered the galvanising shed alone, and it is supposed that he and the furnaceman quarrelled, the result being that they both fell into a tank containing hydrochloric acid. The tank is on a level with the floor, and is about 5½ feet deep. When the bodies were found, the furnaceman was dead and the foreman unconscious. The foreman, however, recovered. A moveable rail is usually placed round the tank while no work is carried on, but on this occasion it was omitted. The matter was investigated by the criminal authorities, but no proceedings were taken against the foreman.

To *Mr. Burns*, Assistant to *Captain Kindersley* (*Edinburgh*), I am indebted for the report of a case of anthrax, which shows the highly insidious nature of that disease, and which is not alluded to elsewhere:—

Anthrax.—Recently a somewhat unusual case of anthrax came under my notice, the particulars of which are as follows :—The occupier of an upholstery workshop while assisting in renovating an old hair mattress, and while putting the hair through a hand teasing machine, scratched the back of his hand. The man paid no attention to the scratch, and it was only after his hand had become much swollen, and not feeling well otherwise, that he consulted a doctor. The medical man at once diagnosed the case as one of anthrax, and, fortunately, his treatment was successful in checking the progress of the disease. At the time of my visit (six weeks after the accident) the man's hand was still of a purplish-black hue and healing slowly. The unusual feature of the case seems to be, that the mattress had been made and had been in constant use for over 20 years. This the occupier could vouch for as being accurate ; thus apparently proving that the anthrax germs may lie dormant for a very long period.

It is probably unnecessary, in view of more technical reports which will be supplied, to add to these.

Docks, Wharfs, Quays, Buildings, &c.

The third category of accidents now requiring report is the new one comprised in the several classes of places briefly summarised above. The difficulties of definition and interpretation, already alluded to, are exaggerated in the present instance both by the comparatively short time during which these places have been under inspection by this department and by the divergent views which have been expressed in courts of law (often in connection with other statutes) as to the exact relation of Factory Acts to them. These difficulties will no doubt be surmounted in time ; at present I may say that the law is gradually, if slowly, coming into full operation, and that as employers become more familiar with it they become also less inclined to dispute its application to their premises and the good work that it is ultimately calculated to do there.

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Brass Works.

It was my duty last year to deal in a somewhat censorious manner with two industries separately coming within the designation of dangerous occupations and subject to special rules. In the case of brass works I stigmatised rather strongly the conduct of workers in failing to avail themselves of better opportunities of health provided for them, and even using these as a lever with which to encumber the action of the Factory Department in compassing their good. The masters, on the other hand, were represented as being willing to comply with the law. I availed myself on that occasion of a very interesting report by Mr. Buchan, and some material supplied by Mr. Graves. It is but fair to give equal publicity to anything that can be said on the other side, and with this object I have much pleasure in inserting this time the following report from Mr. Lauder, practically from the same district, and in which a somewhat different complexion is cast upon the matter. Mr. Buchan does not allude in his report this year to the subject of brass foundries. Mr. Lauder writes :—

> A brass foundry is at the best of times a very dirty and dusty place, and it is not surprising that the washhand basins supplied for the use of the workers should get very dirty and the taps out of condition; the result is that the men ignore them, and so things go on for weeks, sometimes months, until all sorts of dusty accumulations gather in the basins. As nothing is said in the special rules as to where the water must be provided there is a sufficient supply, it sometimes happens that the men have to go some distance to get it. From the experience I have had personally with workmen in the engineering and foundry trades, I am of opinion that if the basins and taps were always kept in good condition, with a good supply of *warm* water and soap always at hand, then a better condition of things might prevail, and the workmen begin to depend on having a wash at the end of their spell of work. However, as long as the letter of the law only is carried out, it is hardly reasonable for anyone who knows the habits of these men to expect that, in the rush and scramble which usually takes place at stopping time, they will take the trouble to clean out a basin and go some distance to find cold water and then go to the store for soap.
>
> A little more care and attention would give more satisfaction to everyone.

There is eminent truth in this. Unless the employers keep their washing and other appliances in a reputable condition the very purpose for which they are supplied is negatived and there is no real inducement to use them. True, the less cleanly of the operatives may give no help in this matter, may even treat the conveniences supplied to them injuriously, but that is a fault to be cured not to be immediately capitulated to. A little patience and kindly remonstrance will generally be enough to bring about a change. Even if it be not so immediately, surely, as a mere matter of economy, it is worth keeping in good order plant that has doubtless been erected at some cost, not to mention the still more valuable human plant whose efficiency is involved. At the worst the dirty workman—who is generally an incompetent one too—can be dismissed.

Mr. Arbuckle reports upon the same subject :—

> Special rules in these works have now been fairly well carried out. In a few cases the washing appliances needed improvement by having fixed washhand basins and water supply. I hardly consider it sufficient to have a portable pail which may be anywhere when wanted, and have pressed for a fixed washhand basin and water supply. Firms have fixed these, and supplied soap and towels in many cases where attention was drawn to the necessity, but although these were supplied I much regret to say the workers do not use them. Cautions seem to be of little avail, they are operative only for a few days, after which you return and find the basins neglected and generally filled with refuse. Pressure has been put on firms to be firm on the fulfilment of the men washing before meals, and I expect in the future to be able to report improvement. Several firms in the district now supply the man attending the crucible with a respirator (covering the nose and mouth) when placing tin, zinc, or lead into the crucible when it is in the furnace; a precaution I highly commend, and has been accepted by several manufacturers to whom I have spoken. The men acknowledge it has been of great service, as the fumes from the crucible, when mixing the metals, get into the mouth and nostrils occasioning giddy feelings and loss of appetite in spite of efficient ventilation overhead.

Aerated Water Works.

Another industry under special rules separately dealt with last year is that carried on in aerated water works. I am sorry to say that the difficulties of application then pointed out continue, and this in spite of the energetic steps taken in some districts to

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require compliance with the law. The operatives cannot be got to invariably view the advantages provided for them in the same light as the framers of these rules have done, and the employers, having provided the requisite paraphernalia, are thenceforth comparatively helpless as to its use. Even H.M. Inspectors are sometimes loath to call upon grown men to enclose their heads in wire cages against their will, contrivances which they declare are injurious and offensive to them, or to wear gauntlets on their arms, represented by them to be productive of rheumatism and allied complaints. Upon this point Mr. Bellhouse (Dublin), who has been exceptionally active in endeavouring to have the rules enforced, writes :—

> I still receive a good many complaints from workers in aerated water works with regard to their having to wear face-guards or gauntlets. The face-guards appear to be specially objected to, and, as it seems to me, not altogether without cause. Long periods of work, during which the eye is being constantly used through a veil of netting with a very close mesh, must, I think, be very trying even to strong eyes. I cannot help thinking that some solution of the difficulty might be found, and that some substitute for wire netting might be used with equal effect.

Mr. Robinson (*Glasgow*) :—

> In aerated water works the cases of non-observance found were chiefly on the part of workpeople neglecting to use the masks and face-guards provided. They almost invariably complained that they were hot, caused headaches, and affected their eyes. How far this is really the case it has been impossible for us to determine. As the accidents caused by bursting of bottles in these works have been so exceedingly few in number (only two or three in the year), and so very slight, I have not thought it necessary to recommend any prosecutions against workpeople for disregard of the rules.

Mr. Lauder (*Junior Inspector in the same district*) :—

> In visiting aerated water works, I find that the employer has in most cases provided the necessary masks and gauntlets, but he seems to think his responsibility ends there. Sometimes the masks will lie knocking about the works until they become rusty and dirty, and it is little wonder that the men refuse to wear such an article. I have in some cases found that the masks provided were very clumsy and heavy, and with a little tact have persuaded the employer to obtain a much lighter and more comfortable article and to paint the wire gauze with a light coat of green paint, to keep it from rusting besides proving better for the eyesight. I have then had the satisfaction of seeing the masks in use for a time, but soon things are as bad as ever, and constant warnings are of no avail in some cases. The more careful amongst the workers, however, seem anxious to comply with the law, and if only employers would take the trouble to get proper masks, &c., and keep them in good order, I feel sure it would have a very good effect in obtaining compliance with the special rules on the part of the workers.

Mr. Arbuckle (*South West of Scotland*) :—

> This industry is numerous in the district, but none of the works are very extensive. The special rules are in nearly every case affixed and employers have carried them out in supplying masks and gauntlets. In several cases I had to caution firms for the class of masks and gauntlets supplied to workers, especially the gauntlets. I had more reason to complain, as these were only ordinary stockings, and not such as to resist the action of bursting bottles. A letter generally followed my caution so that these defects were usually remedied.
>
> I had to take one case against an employee for failure to fulfil the special rules after he had been cautioned, and, getting substantial penalty, the case was of great benefit in procuring fulfilment of the rules by employers and employees.
>
> I have observed lately a growing tendency of manufacturers to use ordinary one pint bottles for mineral waters. They are not bottled at such great pressure as in the usual mineral water bottle, but at a pressure of 60 lbs. to 70 lbs., still a very large number of them get broken in the filling, and many of them burst in the handling, or when in cases when the ordinary mineral water bottle is said to safest. One lad had his eye injured when labelling these bottles in cases. I have explained to manufacturers the great danger of this practice. Usual pint brandy bottles seem to be preferred, and where the danger may cease it is difficult to tell, as they may be bought by a household and one of the members receive a serious accident quite unaware of the danger lurking in the article. This I see has been extending since the bottle exchange has been in force. Some manufacturers say it is because they cannot get delivery of their orders for new bottles from the glass works, but I fear there is more than that, as the small retail mineral water firms seem most guilty.

Other Inspectors bear like testimony on the general question, with more or less variation of opinion as to details.

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Sanitation.

Closely connected with the subject of special precautionary measures against diseases of special occupations are the ordinary sanitary rules applicable to manufacture generally. It is perhaps a misfortune, it is certainly a difficulty in the administration of the Factory Acts, that the enforcement of the law in these two classes of places should be in different hands. The obvious (even the legislative) differences between a factory and workshop are sometimes so small as to be almost inappreciable, and the need of a healthy environment is certainly not confined to either. Further, it is often the obscure workshop—nay, is it not indeed generally so ?—that is most in need of sanitation, in the interest alike of the workers there and of the community at large. Of course there are some local authorities that excellently fulfil their part in procuring this, but then there are others that do not. Also, it is the duty of the Factory Inspector no doubt to supervise to some extent their action as to such workshops, but it is a duty of some difficulty and delicacy in more ways than one. It is not always quite certain how far his power extends, nor is it always quite easy to exert it in a judicious manner even when clearly desirable. It may be resented, or it may be warmly welcomed. The dual control may be operative, or the reverse. Mr. Newlands, writing of the north of Scotland, illustrates some of these points of view, relating at the same time the personal efforts he has himself made to improve matters, and the success obtained :—

> The sanitary conditions in the chief centres in this district seem, on the whole, fairly satistory. During the year 85 notices were sent to to the various local authorities. Only a very small percentage dealt with defaults in the large centres—the principal cause of complaint being overcrowding, &c., in country workshops. Some months ago I visited a workshop situated in the midst of the most charming scenery and far removed from vitiations of atmosphere due to the proximity of large towns. I found six men and three boys working in a room which had only cubic space for 3·6. The roofs were low and four evil smelling lamps had been burning for hours. I certainly never met with such a bad case even in the worst parts of Whitechapel or the Jewish quarters in Manchester.
>
> Taken generally the country towns and villages are in a most insanitary condition. I would quote as an example, but by no means an exception, the town of Ullapool. Here we have about 1,000 inhabitants. There are at the outside some 20 houses fitted with water-closets, but the entire sanitary accommodation for the whole village, men and women alike, consists of an ordinary cast iron erection provided with four seats kept in a most unsatisfactory condition.
>
> In connection with certain sanitary authorities I regret to find a decided lack of unbiased administration. I have, on more than one occasion, had an admission of cognizance of certain defaults in workshops belonging to either the provost or other municipal dignitary. The admission was always accompanied by some explanation showing how the officials' hands were tied in such cases.
>
> Despite the fact that during the past year I have added 1,510 new workshops to the registers I have received *no notice from any local authority such as is called for by section* 3, *subsection* 3 (1891).
>
> This has caused me to go into the work done by the local authority in this district for some time back, and I find that during the last six years only *in one case* has notification been sent as required, yet during that time the workshops on the registers have increased from 2,240 (December, 1895) to 4,743 (December, 1900).
>
> It appears, moreover, that during the same time lists of workshops, complete to date, have been supplied to the various local authorities on three separate occasions.
>
> Under these circumstances I wrote to every clerk to the local authorities in my district—86 in all—quoted the section as above, and pointed out this entire absence of notification from them and asked that the registers kept by their sanitary inspectors be forwarded to this office for comparison with ours.
>
> The replies received were, as a rule, far from satisfactory. Only in six cases were registers kept ; many acknowledged that no systematic inspection was ever attempted ; some stated that they had never received the lists from this office, though the despatch of a copy of their own acknowledgment of such generally resulted in the lists in question coming to light.
>
> Considerable correspondence has therefore arisen on this point between me and them, which, I am pleased to report, has resulted in a much more satisfactory relationship. While taking care to point out that my action in this matter was hardly strictly official I have offered every assistance, of which the following action may be taken as a specimen.

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From various registers procured I drew up the following—almost a copy of the register at present in use in those districts where Dr. Cameron, of Nairn, is the Medical Officer of Health :—

No..... (Registered No.....) Date of visit.....	Remarks.
Nature of business	.....
Conducted by	.....
at.....	.....
Proprietor of premises	.....
Construction	.....
Measurements	.....
Cubic capacity	.....
Number employed :—Men..... Women.....	.....
„ „ Male Young Persons (under 18 years)..... Female Young Persons.....	.....
„ „ „ Children (under 14 years) ..... „ Children	.....
„ that may be employed during ordinary hours	.....
„ „ „ during overtime	.....
Means of ventilation	.....
„ lighting	.....
„ heating	.....
Walls	.....
General state of cleanliness	.....
.....	.....
Last date of limewashing or painting, &c.....	.....
Sanitary arrangements :—	
Water supply	.....
Drainage	.....
Privy	.....
Refuse disposal.....	.....

This form I have submitted when asked for advice as to that which the register should take, and I am pleased to report such registers are now in many cases in course of preparation. I hope to have the adoption of this or similar ones made universal in this district during the ensuing year.

I have also arranged that the register be sent by every local authority to this office in December of each year for comparison, &c. This course I considered advisable for two reasons : (1) The very valuable information that will thus be at my disposal annually. (2) Also because no matter what care may be exercised by the local authority, or at this office, it is quite possible that some notification might be overlooked. An annual comparison would at once rectify such.

The lists or registers that have already been submitted show the necessity of such action. In one case—a county district—the local authority register showed some 80 workshops. On going over my registers I found this list contained 18 workshops not on my register, and 77 on my register not on those of the local authority.

While bringing those lists or registers up to date I am also adding to them those workshops conducted on the system of employing "men only," but marking them as such, and asking the local authority to pay special attention to these places as likely to be notified to me during the year under section 3, sub-section 3, of the 1891 Act.

Mr. Kirkwood (*Inspector in the North of Ireland*) has the following :—

In regard to the inspection of workshops in outlying country villages or towns, a very large number of employees board with their employers, and it is rather a delicate matter for Inspectors to enter these houses which rarely have one of the rooms set apart as a workroom, and where after hours one may find girls working who state that the millinery, dresses, or underclothing, as the case may be, is not for their employers, but for themselves.

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Mr. Arbuckle (*South West of Scotland*) :—

I regret to say that this district has not reached the desired standard of inspection of workshops by the Sanitary Authorities. In some places it is done well, others in a most lukewarm manner, and again in others not at all. I am trying to get into closer touch with the sanitary authorities, and to have more zeal displayed in workshop inspection. In one large town this is specially necessary, as any complaint has to be closely pressed before action is taken, but I hope before another year to be able to say an improvement in this centre has occurred or action will be necessary. Meanwhile the recent decision in Queen's Bench will be of the greatest service in bringing the local sanitary authorities to realize that there is a power that can be wielded when they fail to act.

On the other side, gratifying testimony is to hand of the effective and cordial co-operation of local authorities with the Factory Inspectors in some cases, especially in the larger industrial centres. What is unsatisfactory is that this co-operation should have a quasi-optional character, and that so much in its extent and quality should be left indeterminate.

Mr. Arbuckle (*S.W. Scotland*) writes :—

Sanitary Condition of Bakehouses.

In the district I have been much surprised at the extensive system allowing firms to have drain openings in their bakehouses; even new premises are allowed to be passed by the local authorities for openings in bakehouses. The sanitary inspectors seem to think that trapping and ventilation pipe will suffice, but they acknowledge that even these get defective. I should gladly see any drain opening, whether trapped and ventilated, entirely cleared out of bakehouses, so that no grounds of suspicion can be given to such premises, when the food of man most easily tainted is manipulated.

Creameries.

But the sanitary provisions of the Factory Acts as far as factories themselves are concerned are in exclusive charge of the Factory Inspectors and a great deal has been done throughout the past year in applying them with vigour. So far as the larger classes of such works are concerned there has been (with perhaps the single exception pointed out by Mr. Kirkwood) little difficulty, but at least in two instances the opposite of this has been the case, and both instances are principally concerned with Ireland.

The first has to do with creameries ; factories, that is, where butter or cream are manufactured by machinery for sale. There are also creameries in Scotland and in England, but in nothing like the proportion they exist there. In the following report contributed by Mr. Bellhouse much interesting information is contained as to the general condition of such places and their influence on the adjacent population, to which I may add that other aspects of this industry have engaged his anxious attention (and mine) within the same period. As to those other aspects it is believed they are now *sub judice*—where it is proper no doubt we should leave them. Our own opinions on the matters in debate have been often expressed ; they are to be found in particular in the Chief Inspector's Reports for 1897 and 1899 ; and will not be obtruded now.

Mr. Bellhouse says :—

There has been some check this year to the recent rapid increase in the number of creameries in the country. The year has not, however, been without its interests in this respect, and chief amongst them I may refer to the scares caused by epidemics of fever, which have broken out in the neighbourhood of certain creameries, and the spread of which has been attributed to the distribution of the skimmed milk from the creamery. It would appear that milk is known to have been sent in from farms where there have been cases of fever, and the presumption is that this infected milk in passing through the creamery has caused the disease to spread through the district. It seems a fair assumption to make, and at once brings forward a grave question deserving of the most serious consideration. The Factory Acts forbid the manufacture of clothing in any place in which there is scarlet fever or small-pox ; ought they not equally to make it an offence for a farmer in whose house there is infectious disease to supply milk to a creamery ? I readily grant that the managers and proprietors of creameries are fully alive to the necessity of exercising the greatest care and watchfulness on this point, as is only natural, if only for their own interests ; but on the part of the farmers there is not always this feeling. The creamery is their only market, and they are ignorant of the grave danger to the public health that they may cause. An instance of this was brought to my notice only the other day, when I was told how a milk supplier came down to interview the manager of a creamery, and expressed himself in very strong terms because his milk had been refused owing to a case of fever at his farm, considering that he had been very badly used in being treated thus, after sending his milk regularly to the creamery for the previous four years. There is further the danger of spreading disease in a similar manner amongst cattle, but this is perhaps a question for the Board of Agriculture, rather than for the Factory Department.

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Pasteurization would no doubt be a great safeguard in both cases. In some countries notably in Denmark, it has been made compulsory. Here, unfortunately, it is the exception rather than the rule.

In connection with this subject I append a copy of a circular that has been issued by the Irish Agricultural Organisation Society to all co-operative creameries which have been started under their auspices. It appears interesting inasmuch as it shows what importance is attached to this subject by the society :—

CREAMERIES AND INFECTIOUS DISEASES.

DEAR SIR,—The question of the alleged spread of infectious disease through the medium of separated milk from creameries has recently been engaging much attention in the Press and elsewhere, and I am directed by my committee to suggest to your society the propriety of taking certain steps which, it is believed, will afford your creamery ample protection against any such allegation being made against it.

In those cases where enteric fever has broken out among the suppliers of milk it has been assumed that the outbreak originated in the use of separated milk, and it is also stated that the disease has been spread through creameries receiving milk from houses where cases of fever exist, and subsequently returning the separated milk without being pasteurized to all the creamery's suppliers. Unquestionably separated milk is a most favourable medium for conveying germs of infectious diseases, and it is most desirable that every precaution should be taken by creameries to prevent any such occurrence, or, where fever has broken out, to prevent its being spread. The following suggestions are, therefore, made for the guidance and information of your committee :—

(1.) As soon as any case of infectious disease occurs among the suppliers of your dairy, the milk from that supplier's farm should be immediately refused.

(2.) The medical officer of the district should be notified of the case without delay.

(3.) The separated milk should be pasteurised before being returned to the suppliers, the vessels in which it is returned being previously thoroughly scalded by a steam jet. (Full particulars regarding pasteurisation will be found in the accompanying circular, which was issued on 15th March, 1899, and in the enclosed pamphlet on the same subject.)

(4.) The milk suppliers should be at once provided with a copy of the enclosed instructions, and should be warned that unless these instructions are carefully carried out, their milk will be liable to be rejected.

(5.) The most scrupulous cleanliness should be enforced, both in the diary itself and in its utensils, and also in its surroundings. The drainage should be particularly looked after, and the drains regularly flushed ; all the vessels and utensils should be thoroughly cleansed with boiling water. If these precautions are taken there is no reason to apprehend that any danger to the public health need be anticipated from the use of separated milk.

With regard to the pasteurising, the I.A.O.S. is prepared to supply to any affiliated society which has not as yet erected pasteurising plant, a specification of the necessary machinery, and to send its expert to visit the creamery and advise how best the plant may be erected.

Quite apart from the necessity for protecting the public health, it has been found by experience that the introduction of pasteurization into creameries enables them to produce butter of more uniform, as well as of better, quality, particularly during the winter months, owing to the fact that the process frees the cream from any unpleasant taste of fodder, and also enables the creamery to use "pure cultures" for ripening the cream previous to churning. In Denmark, pasteurisation is compulsory, and in that country also the use of preservatives (which is thus rendered unnecessary owing to the improved keeping qualities of the butter made from pasteurized cream), is prohibited by law.

In nearly all the new creameries very little expense will be necessary in order to install a complete pasteurising plant, but in those which have been established for some time it may be necessary to put in new boilers of larger capacity, as well as the actual pasteurising machinery itself. Though this will entail considerable expense, it will be trifling in comparison to the losses which would be sustained through the closing of the creamery by an order of the local authority, which is a danger that can only be averted by the adoption of the pasteurising process. Moreover, it has been found in districts where creameries are so equipped that calves thrive much better on milk which has been pasteurised, particularly if it has been subsequently cooled to 60 deg. F., than where they have been fed on unpasteurised separated milk.

You are requested to bring this circular under the notice of your committee at its next meeting, and to advise me as early as possible what action it is proposed to take in the matter.—Yours faithfully,

R. A. ANDERSON, Secretary,
Irish Agricultural Organisation Society.

22 Lincoln-place, January 15th, 1901.

Mr. Bellhouse adds :—

There is every indication that the principle of co-operation, which have been so successful in the dairying industry, will be extended. It is proposed to try to apply it in the first instance to flax, and a meeting was recently held in Ballina, Co. Mayo, with the object of starting a society and erecting a scutch mill there, on the most modern system. It has been proved, I understand, that the land is very suitable for the cultivation of flax, and it is hoped that the crop may be grown successfully and profitably.

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Scutch Mills.

The last paragraph of the above report introduces the second industry not at present under special rules of which it seems desirable to treat here separately in respect of sanitation. It was dealt with at some length last year, the particular evil to be combatted, namely the inhalation of injurious dust, receiving full attention at that time, and the peculiar circumstances and surroundings of the business coming in for their share of comment. The same line has been taken this year in the reports of Mr. Snape, H.M. Inspector for the whole of the Ulster district (in which it is almost exclusively contained), and in the joint one of Messrs. Kirkwood and Young, who have been assisting him there throughout the scutching season. Under these conditions, and as I have little new to contribute on the subject myself, I am glad to avail myself of what they say, as under. I would merely add that compliance with the law continues to be pressed on employers in this industry patiently and unremittingly, but that no prosecutions have been instituted this year. It is believed by Mr. Snape that a persistent continuance in this course will be successful in the end, while a minimum of hardship will be inflicted on employers and employed. I hope so; but it is not to be denied that a good deal yet remains to be done. He writes :—

> I beg to report that a great deal of time has been taken up in check visits being paid to scutch mills to see if fans have been erected in the same, and I am glad to say that fans are now being gradually put up. In two cases I took the preliminary steps towards prosecution, but at the last moment, after being visited again, the occupiers promised to erect the fans and I think have now done so. As I have frequently stated before, it is most difficult to induce them to do it. They temporise or refuse at first, pleading poverty, unwillingness on the part of the workers to work if fans are erected, and a thorough disbelief in the utility of them themselves. Of those already at work that I have seen, a few, in my opinion, are doing well, and others are not removing the dust as they should owing to faulty construction of fan, its being unscientifically erected, &c., &c. I am able to state that a fan has been erected at Dromara, Co. Down, Co-operative Scutch Mill, which in my opinion is the fan of the future for scutch mills, and there should be no difficulty beyond existing prejudice (which is so difficult to realise to anyone who does not live in this country) in erecting these. The scutch mills, as far as the removal of dust is concerned, would be equal then to those in Belgium. There is a great superiority in these fans, because they are fixed on the main shaft and are bound to be in motion as long as the mill is, and consequently cannot be stopped and put in motion at the will of any of the workers as is at present the case. I herewith beg to enclose a drawing of the aforesaid, with an explanatory note appended. For these I am indebted to Mr. Frank Barbour of Messrs. Barbour & Co., Flax Spinners, Lisburn, Co. Antrim. I should like to be permitted to state that Mr. Frank Barbour had the fan made at Courtrai, Belgium, and there should be no earthly reason why all scutch millers should not erect them, as they can be made (with the exception of a few minor castings) by an ordinary village carpenter at a cost of not more (including the wooden shaft through the roof) than £3 10s. to £4 per fan. One will be required to be put up between every second and third stock, thus a four-stock mill will require two fans and a six-stock mill three fans, and so on.

The letter from Mr. Barbour and the drawing alluded to by Mr. Snape are enclosed herewith :—

> 15th January, 1901.
>
> DEAR MR. SNAPE,
>
> I AM sending you by post to-night drawing of the ventilators for scutch mills. The following is a description of them, and if you think the description is not full enough, I will be very glad to give you a more detailed one :—
>
> Figs. 1 and 2 show side and end elevations of the apparatus complete.
>
> Figs. 3 and 4 show side and cross sections, with one half of casing removed.
>
> The ventilator consists of a malleable iron spider A. to the arms of which are bolted the wooden blades B. This spider is bolted to and revolves with the scutching handle shaft E., and is located between the scutching handles. Encircling the shaft E., but not attached thereto, are the two wooden plates F. which form part of the casing for the ventilator, the other faces G. being closed with sheet iron. The spider A. revolves within this casing.
>
> The inlets to the ventilator are through the two holes H. at centre of casing F., and the outlet through the pipe I. This pipe is carried to the outside of the building to be ventilated. The direction of rotation of the ventilator is indicated by the arrows J.
>
> It is necessary to enclose the backs of the scutching handles so as to ensure the ventilator drawing its supply of air and pouse from the front of the handles and away from the operative.
>
> Yours sincerely,
> FRANK BARBOUR.
>
> G. B. Snape, Esq.,
> H.M. Inspector of Factories, Belfast.

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Fig.1.

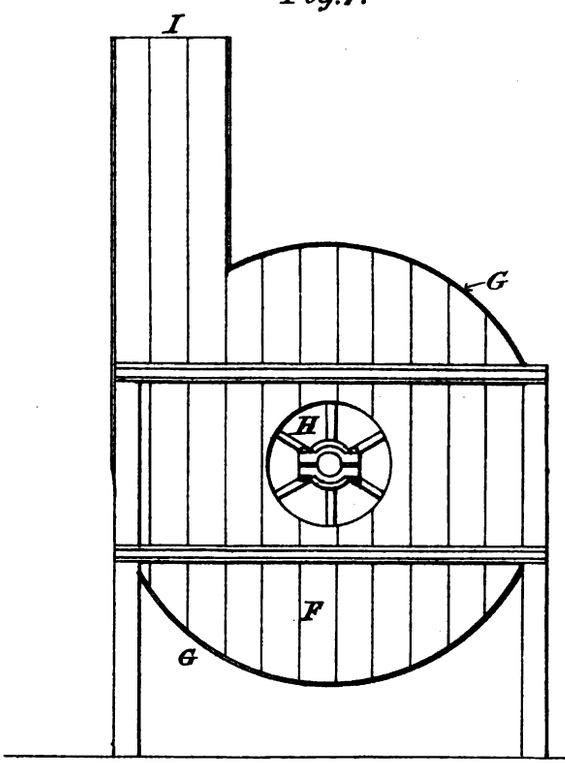


Fig.2.

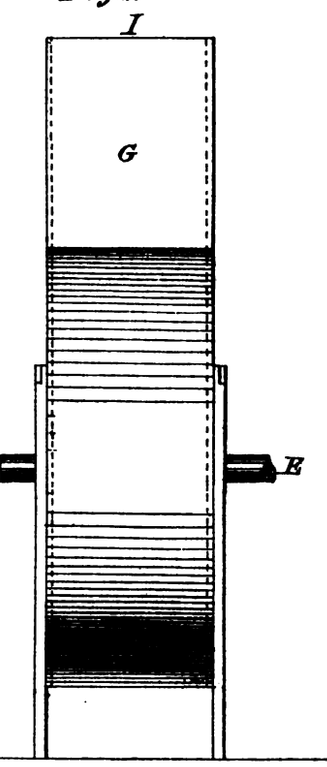


Fig.3.

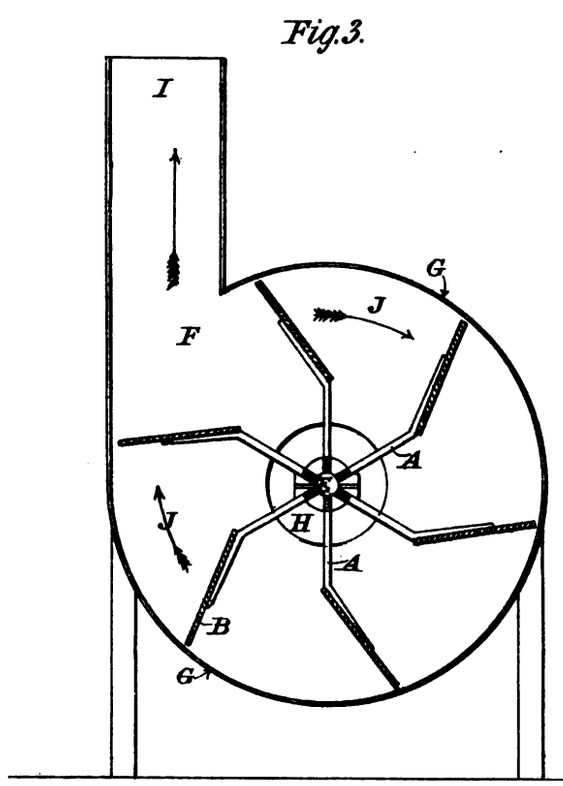
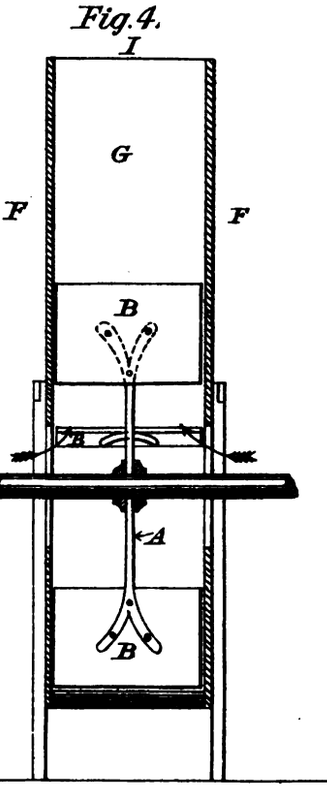


Fig.4.



VENTILATOR
FOR
FLAX SCUTCHING MILL.

Scale ½ Inch to the Foot.

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E. Weller & Grahame. Ltd Li

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Messrs. Kirkwood and Young write :—

In accordance with instructions from the Home Office, we have made a strong effort to deal in a satisfactory manner with the ventilation of scutch mills by means of mechanical fans.

This has been a vexed question in this district for some years past, and it is one which, owing to the intermittent nature and general decadence of this trade, has been very difficult to deal with. We have here to meet with a class of occupiers who are not as a rule blessed with an excess of wealth, and with a class of workmen who are ignorant, prejudiced, and very frequently insolent. In many cases coming within our experience the occupier has been willing to erect a fan in his mill, but has been told by his workmen that they will refuse to work if he does so, as they consider there is quite enough ventilation, especially in stormy weather. In the present condition of Irish labour the workmen are quite in a position to take this attitude, as their number is less than the demand. The calling up of the Reserve Forces and of the Militia for the South African War has further reduced the available supply. In many of the mills, where fans have been erected at considerable cost, the men do not use them, stating that they cause an unpleasant draught and are very liable to get out of order. Most of the scutch mills are far from any populous centre, many are neither wind nor water proof, and of such a broken down character that the expense of a fan seems quite out of proportion to the value of the mill, and it comes to be a question with the occupier whether it would not be better to close the mill entirely. In many instances the occupier is only a yearly tenant paying a certain rent for the use of mill and machinery. In these cases, unless the owner agrees to erect a fan it is most difficult to compel him. The fans which have been erected are those of the regular fan makers, or of ones similar in design manufactured by local engineers. They have not, we are bound to confess, given entire satisfaction.

Where the men are not careful to clean them at regular intervals, and this they are seldom willing to do, the fan gets clogged up with tow, and then the belt breaks; there is also some danger of the fan bearings heating to such a degree as to set the mill on fire. Where, however, these fans are carefully erected and tended they seldom fail to materially assist the ventilation of the mill. Our attention has only recently been directed to an installation of fans erected in a mill occupied by the Dromara Co-operative Flax Association in Co. Down. The fans there are on the Belgian principle, and the mill is certainly the best ventilated we have yet entered. The fans are extremely simple and could easily be made and fitted up by any intelligent country smith. They are similar to the fans used in a corn threshing mill. The blades are bolted direct to the "handle" shaft (which carries the scutching blades), are enclosed in a circular casing with an outlet through the roof. The action is similar to that of a centrifugal pump used for pumping water. Since the fan is fixed directly on the shaft there are neither bolts nor bearings to cause breakdown or danger from fire. We are informed that to be efficient it requires one fan to be fitted between every two "stocks" or set of scutching blades.

Employment.

Since the appearance of my last Report the raising of the age for half time employment has been extended to Scotland and Ireland. The good result of this measure can scarcely be doubted, but even without it this system, antiquated now but most valuable in its day, was rapidly declining in use. In Ireland there is little or no half time employment now beyond the bounds of the province of Ulster; in Scotland it is practically confined to the Dundee district. Even in these, its last strongholds so far as this Division is concerned, a natural decay has overtaken it, which subsequent events have but accentuated. The continual improvement in automatic machinery is one cause of this decay, but also education, and the influence of public opinion must be held to count for something. In Scotland at all events it is now only among a very inferior class of operatives as a rule that it is looked upon with approval, and the resulting consequences, as described by H.M. Inspector Mr. Wilson, are certainly not of a kind to recommend it to any other class. In an interesting and comprehensive report on the whole matter this gentleman says :—

By far the largest proportion of children in the district are employed in Dundee itself, the number engaged outside being relatively small. I append a table showing the substantial and steady decline in the numbers of children working in Dundee during the five years I have been in the district :—

In 1896	there	were	2,793	children.
„ 1897	„	„	2,617	„
„ 1898	„	„	2,437	„
„ 1899	„	„	2,135	„
„ 1900	„	„	1,824	„

If this reduction continues for a few years more child labour in the staple industry will become a thing of the past. As you are aware, I have remarked year by year upon the poor physique of the typical Dundee half-timer, and suggested certain causes for this unfortunate

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condition of affairs. Many of these children are born and brought up in single and double roomed houses, or in large tenements, where the conditions of life are almost as unnatural and injurious as it is possible to imagine. Overcrowding often exists, in conjunction with general squalor, and intemperance on the part of one or both parents. Injudicious and unsuitable feeding during the susceptible period of infancy, exposure to inclement weather, and general neglect appear to be largely the cause of infantile deaths, as the children who survive seem to suffer more or less from weak constitutions throughout life. The latter class are often very short and far below the normal standard in weight. Undoubtedly factory life, although not specially injurious to workers who have naturally strong constitutions or who commence labour after having reached maturity, nevertheless neither fosters growth nor development, and has a distinctly harmful effect on undersized or badly nourished young persons. Thus I have frequently conversed with full grown men of 20 years and upwards who do not stand more than five feet or five feet one inch in height and who scale less than nine stone. These men have not the physical strength for heavy manual labour, or indeed any task which demands prolonged effort, but must accept unskilled labourers' wages in mills or factories all their lives. Such wages are usually very small and quite inadequate to support a wife and family. The degeneracy exhibited in males is similarly remarked in females, but in a slightly lesser degree. The present race of mill workers in Dundee are the decendants of generations of operatives, there being little intermarriage in this class with persons of rural origin. The operatives in the surrounding towns of Forfar, Arbroath, and Brechin are taller and more robust looking than their colleagues in Dundee.

Heights and Weights of Dundee Children.

Towards the close of last year I measured 169 boys and girls, and weighed them, with a view to discovering the exact amount of degeneracy as compared with the recognised normal for children of the ages specified. The heights were measured in stockings, and the weights include ordinary winter clothing. The children and young persons were exclusively employed in jute mills in the heart of Dundee, and were taken indiscriminately, so as to secure as far as possible a fair average.

The following are the results, two tables being ranged alongside for comparison, selected from "Treves Physical Education" and (Holts) treatise (American authority) on "Diseases of Infancy and Children." Assuming that the figures given by these to be approximately normal, the Dundee children will be remarked as decidedly deficient in both height and weight, indeed the contrast is remarkable.

BOYS.

Age.	DUNDEE.		TREVES.		HOLT.	
	Height.	Weight.	Height.	Weight.	Height.	Weight.
	Ft. ins.	Lbs.	Ft. ins.	Lbs.	Ft. ins.	Lbs.
11–12 years	4 2	62·8	4 5½	72	—	72·4
12–13 „	4 4¾	68·5	4 6¾	76·7	—	77·8
13–14 „	4 5½	68·9	4 8¾	82·6	—	88·3
14–15 „	4 6	70 5	4 11	72	—	99·3

GIRLS.

Age.	DUNDEE.		TREVES.		HOLT.	
	Height.	Weight.	Height.	Weight.	Height.	Weight.
	Ft. ins.	Lbs.	Ft. ins.	Lbs.	Ft. ins.	Lbs.
11–12 years	4 3½	63	4 5	68·1	—	70·3
12–13 „	4 5	68	4 7½	76·4	—	81·4
13–14 „	4 6½	76	4 9½	87·2	—	91·2
14–15 „	4 7¾	77·5	4 11¾	96·1	—	100·3

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The following figures are interesting as showing the better physique of children engaged in flax mills in a small county town (Brechin).

Average of 28 boys.

„ 25 girls.

Boys.			Girls.		
Age.	Height.	Weight.	Age.	Height.	Weight.
	Ft. ins.	Lbs.		Ft. ins.	Lbs.
11–12 years	4 6¼	76·8	11–12 years	4 4¼	71·8
12–13 „	4 7	77·1	12–13 „	4 7	78·5
13–14 „	4 9	81·0	13–14 „	4 8¼	84·0

The smallest boy I found (in Dundee) stood 4 feet high, and weighed 3 stones 13 lbs. This little lad was 12 years and 9 months old.

The smallest girl weighed 3 stones 14 lbs., was 4 feet high, and 11 years 4 months old.

I would hardly be credited that children of these diminutive dimensions were earning their bread by laborious work.

Among such a class as is here described it is easy to believe that the best statutory intentions are not always productive of the expected fruits, or at all events not immediately. Thus the raising of the age for work in Dundee has not resulted so far in unmixed good, but has even brought with it a coincident evil, or at the least exaggerated one evil already existent there. This is the evil of personation, the taking on by children the personality of other children, with a view to defrauding the regulations as to age and obtaining employment nevertheless. Mr. Wilson describes the nature of this offence in full, adducing practical instances of it, and contributing some vivid touches of his own.

Much trouble has been occasioned during the past year, by persistent personation, notwithstanding a considerable number of prosecutions. Within a few hours, on two consecutive days, I discovered 15 children working under false names in jute spinning mills in Dundee. Prosecutions were instituted in twelve instances, convictions following in eleven cases, the twelth being held "not proven" as the father, through absence from home, pleaded ignorance of the offence, throwing the blame on his wife, the child's mother. As a general rule there is great poverty or intemperance on the part of the parents before the expedient of personation is resorted to. Some of the cases on investigation revealed an almost incredible state of affairs. A deserted wife with five young children was found living in a single roomed house, possessing scarcely any furniture except a dirty bed covered with rags, two broken chairs, a few cups and saucers, a teapot, a frying-pan, and two or three cheap ornaments. The house was dirty beyond description, and to add to the discomfort, a pail containing evacuations (the only sanitary accommodation the family possessed) stood in a corner of the room. This woman, when in health, supported the family by working herself, but being ill, sent the eldest daughter, a child of 12, to procure employment with a friend's birth certificate, and thus a full timer's wage of 9*s*. per week was obtained.

To instance another and rather interesting case. About three years ago, with the assistance of a School Board Officer, I discovered a little girl of Irish extraction named Catherine Donnachy, working in a spinning mill as a full timer or young person, when she actually was 10 years of age. Within six months I again found her in two other factories, with a different name on each occasion. Proceedings were instituted against the father, but he disappeared and the mother being too ill to attend court I stayed procedure for the time being. Up to last November I completely lost sight of the family, but in that month I recognised the child in another factory, although by this time she was 13 years of age. In questioning her as to her identity she absolutely denied any knowledge of such a person as Catherine Donnachy. Having not seen her for about two years, and as in the interval she had grown a little, I thought possibly a mistake had been made, but on examining the birth certificate she produced, I noticed that the mother's maiden name of the young person referred to in the certificate was Donnachy. As a matter of fact the documents belonged to a cousin. This confirmed my suspicions at once, and on confronting her with the certificate, she confessed everything. On her own admission this child commenced labour at the age of *nine years and three months*, and until I saw her last worked in six different factories. From the wages earned during these years the parents must have received at least 60*l*., and that, of course, illegally. I determined to see the parents, and, although given an incorrect address, after much trouble, and enquiring at numerous pawnshops, the mother was discovered. She was living in a wretched tenement, the room being destitute of almost every necessary. The woman, a helpless drunkard, had pawned her childrens' boots and stockings as well as her own, and

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was sitting, half clad, with an infant of three months old (evidently wasting) on her lap. A boy of six, also in the room, was so rickety in the legs, as to be quite a dwarf. The mother admitted her intemperate habits, and indeed it was evident that the bulk of the little daughter's earnings had been swallowed up in rum, the drink of this class. It transpired that during the period I lost sight of the child, she was working in a mill employing upwards of 4,000 persons, a works in which to identify one particular individual would be difficult. Catherine, the child referred to, in spite of hardships and a bad environment, appeared to have a wonderfully good disposition. She had not passed Standard I, and consequently could neither read nor write. I have taken steps to procure the help of the School Board, and the Society for the Prevention of Cruelty to Children, in the interests of this family.

I would hope that the case cited is an unique one in every respect, but at the same time it illustrates how a determined and dissolute parent can defy the provisions of several Acts of Parliament, Factory and Educational.

It is difficult to suggest a satisfactory remedy for this persistent personation in Dundee. Prosecuting the parents is not entirely successful, as the fines inflicted can generally be recovered in a few weeks, by sending the child back to work, and deducting the amount from the relatively high wages earned. It must also be admitted that in a town where there is so much destitution and often ill-health among the poor, opportunities of a family securing 9*s*. or 10*s*. per week by utilising the services of a child form a powerful temptation.

Again, unskilled indoor labourers make very poor wages, indeed a smart boy of 13 will earn at times almost the same amount as his father, and thus there is a regrettable tendency on the part of parents, to rely more and more on the earnings of the family. Although during the last few years there has been a marked rise in the wages of juvenile workers in the textile trades no corresponding increase has been vouchsafed to adults.

The high wage for youthful workers, taken in conjunction with the ease by which illegal employment can be secured in many different establishments, must, I fear, be considered the prime cause of personation.

Overtime.

The modification of the ordinary hours of employment in the direction of overtime working forms a subject of controversy on which some division of opinion still exists. Originally, as successive industries were brought under the control of factory legislation, an allowance of this kind was necessary, or at least excusable, that their transference from a condition of freedom to one of regulated control should not be too harsh, sudden, and revolutionary. But with the lapse of time this excuse necessarily parted with much of its validity, while in the meanwhile other ameliorations in the lot of the operative population proceeded with rapid strides. It became necessary—or appeared to do so—to invent other reasons for extending the normal working day in particular instances, and with this view certain categories were devised, the so-called Season Trades, having exceptional advantages over others. It needs but to look at these categories to see to what strange issues this policy led, but a closer acquaintance with the subject is requisite to realise how utterly indefensible, and even ludicrous, were some of the pleas upon which a claim to be included within one or other of them was based. A great reform was accomplished when under the Act of 1895 young persons were in most instances forbidden from working overtime at all, and this, combined with the shortening of the annual overtime allowances for women (Sec. 14), and the provisions of Sec. 13 of the Act of 1883, seemed in a fair way towards abolishing those excrescences of later factory legislation and restoring the principle which properly underlies it, namely the normal working day. Unfortunately, as it seems to me, opportunities were given under Section 39 (1895) for evading the wholesome trend of events thus sketched. What was given with one hand was withdrawn with the other; and a controversy almost closed, or which showed signs of dying of pure inanition, was revived. Several of the Inspectors allude to this subject, and almost universally their opinion is in favour of the total abolition of overwork as now practised and understood. It is notorious that the great weight of opinion among employers is thrown into the same scale, their only stipulation being that the incidence of the law should be equal. Whether so comprehensive a reform as this is possible now without even still a little inconvenience I am not prepared to say, but I am quite confident that a further approximation to it is clearly feasible and would be eventually welcomed all round.

The following from *Mr. Robinson* (*H.M Inspector for Glasgow and the adjoining district*) may be quoted on this head:—

I have often reported before that, in my opinion, ordinary overtime for women under sec. 53 might be entirely abolished, and the following incident rather tends to support this view: The

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occupier of a very extensive workshop in which dressmaking, &c., is carried on, and whose premises were divided up for overtime purposes as far as possible by my predecessor here, came to see if I could not still further sub-divide his dressmaking workrooms; on my explaining that I could not possibly grant him a certificate for overtime in any more different departments, he replied:—"Well, I wish you could get this overtime done away with altogether, but as long as it is legal and my neighbours make use of it I must do the same." Moreover, I have often been told by similar employers that the work could easily be done without overtime, but that the knowledge that overtime is legal in this trade and can be made use of if necessary, not only encourages delay in the giving of orders in some cases, but also causes the workers to rely too much upon being able to make up time lost or wasted in their execution. When overtime for young persons was abolished by the Act of 1895, it caused a great deal of inconvenience at the time in the lithographic printing trade in the district in which I then had charge, but occupiers soon adapted themselves to the change, and before I left the district I heard very few complaints about the difficulties occasioned by not being able to employ young persons late when busy.

Mr. Snape writes from the principal industrial city in Ireland:

In my opinion overtime should be done away with, and I hope I may be permitted to give my reasons. The great cry is that overtime should be granted to all trades which have "seasons"; in nearly all the branches of industry in my district which have seasons, during the periods between the seasons the workers are not anything like fully employed, and provided that foreign competition does not enter into the question, I firmly believe that if a sufficient time were given to all employers to turn round the doing away of overtime would be no hardship. For example during the months of January, February and March and August, September and October, dressmakers have comparatively little to do, and the greater majority of the dressmaking in my district is done in six months of the year; take also the hemstitching, blouses, shirts, collars, aprons and pinafores, the hours for work are generally 8 a.m. to 6.30 p.m., and 8 a.m. to 1 p.m. on Saturday, giving a weekly total of 52½ hours, they nearly all work these hours except during the seasons, even supposing that I give them credit for working to 7 p.m. this would give a total during the week of 55 hours, thus losing 260 hours in the year, or four and one-third weeks; and if the overtime were included, that is 60 hours, it would still leave three weeks and one-third of non-employment.

It seems superfluous to add to these expressions of opinion.

Outworkers.

The matter of outworkers is one in which the administration of the law has not yet reached that position of stability to which it has attained elsewhere, and which it may be hoped will eventually characterise it in this direction too. Yet that supervision is widely needed is abundantly proved by many reports of the Inspectors, not to mention the disclosures made before the Committee of the House of Lords on the Sweating System more than ten years ago. The difficulty is how that supervision is to be supplied. Mr. Snape (Belfast) reports that there are over 20,000 outworkers in his district alone *not a thousandth part of whom have ever been visited!* Of several hundred employers required to send notices of outworkers in their employment under section 27 of the Act of 1891 and section 42 of 1895, only 20 to 30 (he reports) did so when those lists were last due. Mr. Newlands gives a rather alarming and more detailed account as to the north of Scotland, where the numbers are, however, by no means so high, and where a really vigorous attempt at putting the law in operation seems to have been made. Mr. Arbuckle supplies some information from the south-western division of the same country.

Mr. Newlands (North Scotland):—

During the past year 90 firms in this district have sent in lists of outworkers shewing a total of 172 contractors and 538 outworkers. This list is now fairly complete but owing to pressure of other more important work I have been unable to have further investigations made or visits paid to any of the places mentioned in said lists.

In the Shetland shawl industry overcrowding seems to be prevalent—in fact sufficient accommodation is rarely if ever met with. In the Harris tweed industry the existing conditions are even worse. The whole premises consist generally of a little hut, possibly 20ft. by 10ft. Windows are luxuries that cannot be afforded, while chimneys are looked upon as unnecessary architectural adornments. The floors in the better class places are of stone "cobbles" and in the majority, earth. At one end you have what might be termed the living apartment, capable of identification only by the presence of a limited number of household requisites; the other end is piggery, poultry run, and byre in one. There is a boundary fence often found between the two ends—generally of such a nature as could not be looked upon even by the "laisser faire" as a satisfactory fence for the most innocent water wheel. This fence is simply used to keep the cattle away from the fire which is generally situated on the floor untrammelled by such boundaries as that afforded by a grate.

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Mr. Arbuckle, (S.W. Scotland):—

Outworkers are not very general in this district, and employers have in most cases sent to me their returns. A case of peculiar interest came to my notice lately in this industry. One evening when night visiting, passing along a street, I saw a very bright light in an attic above a tailors workshop, and entering found two women busy darning tweed cloth. On enquiry I found they worked in the tweed mill the full period of employment, then worked at this for a few months in the year after mill hours, but on further enquiry that the firm gave the cloth to a woman as an outworker not employed in the mill to darn. This woman seemed only a go-between, as she could not do this sort of work, and gave it over to these workers to do for her. The day workers had used this woman as the means of blinding the actual facts to their employers and foremen, being glad to get this pressure of business and delivery of material hastened, and they not being too scrupulous to enquire if outworkers are bona fide in the manner of their work. Immediately the circumstances in the case were known, the firm stopped the giving out of work to this person.

Prosecutions.

In an earlier paragraph of this report I spoke in terms of gratification of the decrease in the number of flagrant violations of the law within this Division necessitating legal proceedings. I had to add however that this decrease was confined to Scotland. In Ireland there has been an increase. Now what is the meaning of this distinction? How is the difference in these two portions of the Division to be accounted for? There is a somewhat painful consensus of opinion on the subject as regards one part, the north of Ireland. All the Inspectors there assign the same reason. It is the want of adequate support afforded them by the courts of summary jurisdiction. The penalties inflicted for breaches of the law are often ridiculously low; sometimes even the Magistrates seem to side with the offenders; not seldom they manage, whether designedly or not, to leave that impression on the public mind, whatever their formal judgment may be. On the other hand in Scotland the contrary is the case. The penalties imposed are of a deterrent character, and faithfully represented the sympathies of the Bench. Hence the need of bringing fewer cases before it there.

Mr. Robinson writes:—

Forty-one firms have been prosecuted for infringement of the law during the year; these cases involved over fifty different charges. The most common offences were employing protected hands after legal hours, and failing to have young persons under 16 years of age certified by the factory surgeon. Seven of the cases were for failing to fence dangerous machinery, and there were several other different kinds of charges; in no case were the proceedings unsuccessfully taken. It is very satisfactory to be able to report that the penalties inflicted by the sheriffs in Glasgow, and for the most part in the counties in the neighbourhood, for breaches of the law are reasonably substantial; this is a great change to what used to be the practice in the Sheriff's Courts here some years ago, and is still the case, I believe, in most other districts, and it must to a great extent, I think, account for the few cases, comparatively speaking, we have found of employment of women and young persons beyond the legal hour among dressmakers and the occupiers of the smaller class of workshop.

Compare this now with the statement of *Messrs. Kirkwood and Young*, formerly attached to Scotch districts, and having, therefore, knowledge of both countries. They say—

Comparing an Irish district with a Scotch one we cannot help but notice the small amount of support given to the Department by the Courts of Law, also that the evidence given by witnesses in Court very often does not agree with the information given by the same witnesses on declaration forms in the factory or workshop. As an example of the want of support here the fines are very small, say from 6*d.* to 1*s.* with costs, in many cases, when in Scotland for a similar offence a substantial penalty would be inflicted. The result is that prosecutions are more abundant here, and have also far less effect.

Or with this very distinct pronouncement of *Mr. Snape*:—

I very much regret to have to report that magistrates, especially in the country, do not view the administration of the Factory Acts in at all a favourable light, the penalties in most cases being, in my opinion, most inadequate for the offences committed. With your permission I will cite two glaring instances which have occurred during the past year. At Coleraine I had eight cases dismissed for illegal work, the magistrates deciding that the place in each case where work was being carried on was not a workshop, although the facts were admitted, It was allowed that the women did millinery work for sale; but because this work was executed

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in a retail shop the magistrates did not consider it to be a workshop, and refused to state cases on the technical ground of the charge being "frivolous." Another case occurred at Monaghan where check visits were paid to see whether the noticed holidays were kept. When an occupier of a dressmaking establishment was prosecuted for not giving St. Patrick's Day, one of the magistrates, a medical man, rose up on the bench and proposed that there be a fine of one half-penny in each case, stating that the Factory Act was never intended for places like Monaghan. The bench fined the defendant fourpence in each case, amounting to one shilling penalty, and six shillings and six pence costs. I am also sorry to have to state that there seems to be a greater prevalence than there used to be of witnesses giving their evidence in a very unsatisfactory manner.

Now this is a condition of things greatly to be deprecated, and I should certainly have failed in my duty had I omitted to draw special attention to it. The Irish are an impressionable and emotional people, and are quick to see (to use a conversational expression) "which way the wind blows." They are also a highly litigous one, which is but another form of national pugnacity. To play upon these qualities at the expense of public policy would be, if it were intentional, a grave fault, and is, if unintentional, a great mistake. I have myself seen the result in the neighbourhood of Coleraine, where one of the trials alluded to by Mr. Snape occurred. I have seen his authority repudiated, and himself referred with opprobium to the Coleraine bench of magistrates for redress. I have seen the proprietors of workshops in that neighbourhood refuse to conform with the well-known principles of the law in view of what had occurred, and threaten to remove all their workers from the workshop proper to the shop, that they might be wholly independent of it. This too after they had up till then willingly conformed. The whole Coleraine case is, however, of such general interest, both for itself and in its bearings, that I have asked Mr. Snape for a special report of it, which I enclose. It will be seen that the very definitions supplied by the Acts of Parliament are called in question, and dealt with as if still proper matter for debate.

At Coleraine, on July 6th, 1900, before Sir Hervey Bruce, Bart. (Chairman), Captain Welch, R.M., and five local magistrates.—The following firms: Samuel Alexander, Burns & McClleland, Porter & Co., and J. Reid Gallagher, all of Coleraine, being drapers, were summoned for employing, in each case, a woman after legal hours, and the three former were also summoned for not exhibiting the abstract.

It was proved by Mr. Ballantyne in each case, that the women were employed at the time named in each of the summonses, and were engaged in millinery work. In the case against Mr. Samuel Alexander, Agnes Peden stated that she was employed by Mr. Alexander, and that on Saturday, June 2nd, 1900, she was trimming a hat for a customer at 8.55 p.m. She also stated that she was a niece of the occupier, and lived on the premises, and was engaged as a saleswoman. The solicitor for the defence said:—"The whole case depended, in the first instance, upon whether their worships were satisfied that the premises in which the young lady was found was a workshop, or whether the work she was doing was work in pursuance of her employment. He submitted that this was not a workshop, and that Miss Peden was perfectly within her rights to assist her employers if there was a stress of business." The defendant said:—"Miss Peden was engaged as a saleswoman, and also to take charge of fancy goods"; and, in answer to my question, he did not correct Miss Peden for working after hours. The chairman stated:—"It would appear to me that if there are people employed in a shop, it is a crime for them to do anything except waiting behind the counter." I replied:—"No, sir, I don't say that." The chairman then said, "that seems to be the real meaning, I don't think it is in the Act." I replied, "I say adapting an article for sale constitutes that place a workshop" (I also read portions of sect. 78).

The chairman announced that the bench had decided to dismiss the case. I then asked for a case to be stated. The chairman replied, "there is nothing to state in the case." I replied "I respectfully ask you to state a case; I maintain that I have proved, according to evidence, with all due deference to you, that this is a workshop, and ask you now, as you have given a dismiss, to be good enough to state a case."

Captain Welch, R.M., said to the chairman, "that they would be required to state a case unless they thought the case frivolous, which was required by the Act." The chairman then stated, "I think terming a shop where sales are conducted a workshop, is frivolous, and that is why we dismissed it. "On behalf of the magistrates I decline to state a case, and that they will be marked on the court register, frivolous."

After this the other cases were formally heard with similar results.

The effect of this decision has had a very bad effect in my district, as many shopkeepers are continually referring to these cases, and in one case, in Limavady, a draper deliberately stated that he declined to carry out the instructions contained in the Act, and he did not give in at my next visit, when I was accompanied by Her Majesty's Superintending Inspector, but just as we were leaving the town he came up to the station and informed Her Majesty's Superintending Inspector that he would keep the law.

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In my opinion fully 75 per cent. of the places where millinery is sold in my district, the partial trimming and altering or ornamenting the same, is done in a retail shop where there is no (what might be termed) workshop attached.

The *modus operandi* is as follows :—A draper desires to sell millinery, he buys untrimmed shapes of bonnets and hats, and occasionally hats and bonnets that are fully trimmed and ready for wear. He then engages a shop-assistant who has a knowledge of millinery ; this assistant does any millinery that is required when not attending to customers (by the way this assistant receives a larger salary than an ordinary shop-assistant). Her hours are, usually, 9 a.m. to 7 p.m. on the first five days of the week, and on Saturdays from 9 a.m. to 10 or 11 p.m.

In my opinion the above places referred to are certainly workshops within the meaning of section 78 of 1878 Act, during the time that they are engaged in making millinery for sale ; and if these places referred to are not considered to be workshops it would almost appear that paragraph 4 (of section 16, 1895 Act) might be erased from the statute book.

So much for the north of Ireland. In the south I am happy to say things are not so bad. Mr. Bellhouse has to report an increase of prosecutions there too, but he gives a somewhat different explanation of it. It is easy to see from it, however, that were his own exceptional energy and ability relaxed things might easily deteriorate from the high standard that he has succeeded in establishing. It is only by unceasing vigilance and firmness, combined no doubt with a courteous bearing and, above all things, inflexible justice, that laws alien in many respects to the habits and modes of thought of the Irish people can be imposed on them with any permanent success. Any paltering with these, any pusilanimity in enforcing them, anything in the nature of a retreat from the position once taken up, is fatal. We have learned little indeed from Irish history if it has not taught us that much. *Mr. Bellhouse* reports :—

We have had a very large number of prosecutions during the past year, more I think than in any year since I have had charge of the district. I do not, however, attribute this to increased irregularity, it is due rather to our having been obliged to adopt stronger measures when we have failed to obtain compliance by mere instruction and cautions. Most of the prosecutions have been for employment after legal hours, and for the most part in workshops. There is an utter want of system in the carrying on of businesses in the country towns. Work begins very late in the morning, there is an inclination to allow the hands to go to their meals at any hour almost they may choose, and there is consequently often necessity of keeping them in late in the evenings after legal hours. Another system which tends largely to these unbusinesslike habits is that of employing apprentices to a very large extent. These girls get no pay whatsoever, but are considered to be repaid for their services by the knowledge of the business that they acquire. The employer has of course under these circumstances but little hold over them, and they are often inclined to come in and go out as they please. The system appears to me a most improper one, but is almost universal all through the country.

There have also been a good many prosecutions for not protecting machinery. These again arose through neglect to carry out instructions previously given, and are to be attributed to a spirit of apathy rather than to any hostile feeling against the requirements of the Acts.

I have also instituted proceedings against the occupiers of creameries in several cases for non-provision of sanitary conveniences—always, I am glad to say, with satisfactory results. The necessity for those places appears to me to be very great, for though the numbers employed in the creamery itself are only small, there are a great many others of each sex who are attending at the creameries every day bringing the milk, who should, in my opinion, be taken into consideration, and for whom proper provision ought to be made.

Miscellaneous.

I am indebted to several of H.M. Inspectors for interesting notes on a variety of miscellaneous subjects.

Mr. Wilson (Dundee) :—

Drinking Water.

Last year I reported rather fully on the subject of drinking water as supplied in many spinning and weaving establishments. Considerable progress has been made in doing away with the objectionable system of supplying water in pails having mouthpieces used by the workpeople in common. Many factories have now earthenware or metal sinks arranged thoughout the works, with water laid on ; and when this is done, the workers usually supply

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themselves with drinking mugs. In certain of the best weaving sheds soap and towels are provided, but this is confined as a rule to the establishments where the work produced is of a fine nature and easily soiled by dirty hands.

Cloak Rooms.

Much more might be done in the way of providing cloak rooms for the female workers in textile establishments. When the factories were built the women went to and from their homes in the clothes they actually worked in, but during the last few years this custom has almost entirely disappeared, except in the cases of certain preparing and spinning operatives in Dundee. In Dunfermline, for instance, where the work is highly skilled and clear, attracting a distinctly superior class of women, not only are hats and jackets worn outside, but actually gloves. Notwithstanding the advance, however, in the personal habits of the workers, many employers provide no accommodation whatever for the outside clothing of the women. Thus one finds shawls and dresses stuffed inside jute sliver cans—an obviously unsuitable receptacle.

Mr. Newlands (North Scotland) :—

Ventilation.

Possibly it is only natural that in a district such as this, so far removed from the larger ndustrial centres—*i.e.*, the North of Scotland district—that ventilation is most imperfectly understood. Manufacturers seem quite willing to put in fans—in many cases this has been done on their own initiative. The work is generally handed over to some local engineer who is not in possession of even the most elementary maxims of ventilation. The factors which seem to influence the decision as to position of the fan appear to be ease for drive and vacant wall space. Where exit ducts leading from the fan to the outer air have to be put in, the efficiency of the fan is again often seriously impaired. There seems to exist some idea that because a chimney stalk is built with a taper to its point of discharge, so should a duct leading from a fan. In one case I found that the area at the outer end of such a duct was one fourth that of area of the duct at the point nearest the fan.

During the year, however, several very efficient ventilating installations have been put in. One particularly, I think, is worthy of mention—a comb work recently started. I made a series of careful anemometer tests and find (1) speed of main duct, 10 feet from fan, is 4,200 feet per minute; (2) speed in extreme of the right section duct, on point of entry to stripping shop, is 1,500 feet per minute; (3) in left section, at entry to pointing shop, 1,200 feet per minute; (4) inside hood to the extreme stone in the stripping shop, 600 feet per minute; (5) at a point just outside same hood, 300 feet per minute; (6) inside hood at point 6 inches from supplementary duct of the extreme stone in the pointing shop, 600 feet per minute; (7) just inside hood of same stone, 190 feet per minute; (8) just outside same hood, 97 feet per minute. I have every reason to expect even a higher state of efficiency at next test, as one or two minor alterations are being carried out.

Boilers.

Since coming to this district I have been several times impressed with the carelessness shown by employers in choosing men to attend to the boilers and engine. There seems to exist some notion that any unemployed fisherman or ploughman can fire the boiler and attend to the engine, though it may require skilled labour to load a waggon or "draw off" at a bench. Apart from the economic advantage which I know arises from the employment of skilled labour for such work, the system too often indulged in gives rise to considerable danger. This was very forcibly brought home to me this summer while inspecting a travelling saw mill near Forres. The safety-valve was blowing off so violently that I experienced some considerable difficulty in making myself heard when speaking to the man in charge. To my horror the man stepped upon the boiler and proceeded to *screw down his safety-valve* in order to lessen the noise. Needless to say, the instructions on the use of the safety-valve were given not quite so close to the boiler.

Quite a number of accidents have been caused during the past year by explosions of accumulated gases in the flues of boilers. This has led me to enquire into the construction of the flues, and I am reluctantly compelled to admit that the general aim seems only to be to give plenty of room for the most corpulent to pass through for cleaning or inspection purposes. They seem to forget that any place in a flue where air is allowed to remain stagnant becomes a receptacle for accumulation of gases which may at any time cause an explosion destructive at all times to the flues and often accompanied by injury to the fireman.

To this general statement I should like to add my strong recommendation as to the fencing of gauge-glasses of boilers. This should be invariably done. Many good guards are to be had, but strong wire or thick glass guards are generally best.

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Truck.

In connection with certain industries, such as the Shetland shawl and Harris tweeds, I find there exists a considerable amount of old system of "Truck." Mr. Ballantyne reports also that it exists in the fishing industry. I hardly think, however, that in the meantime it is remediable under the Acts by the inspectorate. The local ma gnate—usually a grocer and general merchant—gives out the work to be done, but neverunder any circumstances pays for such work in other than the goods he sells in the shop. The dealer keeps the account and values the work given in. On speaking over this matter with an old woman who was in the habit of doing a considerable amount of this kind of work, I was impressed by one of her remarks—the difficulty of "getting oot o' the bit" (the reducing of a debit balance owing the grocer).

With the system as it exists I am afraid that such would be impossible were the dealer in any way unscrupulous.

Assistance of County Police.

Early in the past year I found that many of the factories and workshops in the districts had not been visited—their existence being unknown. I communicated with the chief constables of the various counties on the matter, and it gives me great pleasure in reporting that everywhere I met with the most cordial co-operation and received valuable assistance. Lists to be filled in from local knowledge were prepared by each chief officer, and forwarded by them to the various constables under their charge. Those lists contained the name and address of every occupier, the industry, the number of employees, and nature of moving power, if any. The possession of this information eliminated the need of search for new places—a process that takes up a good deal of time when a new district is being opened up. A comparison of those lists with the registers shews an addition of 3,148 factories and workshops, of which nearly 1000 are men-only workshops.

Mr. Arbuckle (S.W. Scotland) :—

Holiday Notices in Scotland.

In Scotland the manufacturers have to affix Form 34. I have not found the return of these forms so well fulfilled as might be expected. Firms are lax in renewing them each year, but I think this arises from the magistrates and commissions not notifying the holidays under the Factory Act as required in the early part of January; still I think the magistrates of burghs ought to name the two days for holidays in lieu of the fast days, not later than the last week in in December of each year, for the holidays in the forthcoming year. The Act requires the employers to forward this notice in the first week of January, but the appointed two days are not known then, and some councils take well into February before announcing the fixed dates. Occupiers have thus some grounds to plead that the Act cannot be complied with till they know the dates. I think the councils or commissions ought to send a notice of the dates fixed to H.M. Inspector of Factories for the district each year after being fixed. When there are many towns and burghs in a district it is a very difficult matter to revise the notices, and see each occupier has filled his notice to the dates appointed, as on a prosecution he could say Form 34 was sent to H.M. Inspector and these fixed dates were not given, and hearing nothing from the inspector he considered it met with his approval.

Invertors in Steel Works.

One firm in the district use this mode of manufacture, and have been repeatedly visited on the fitting of the valves to their invertors and centre cranes. They placed orders for the valves with several makers, but have only as yet received one valve for to fit to the centre cranes, delay having arisen chiefly owing to the finding of most suitable valve. I called recently on the firm to see if fitted, but find they have been standing idle for two months, and will not restart for some time yet. They contemplate to remove all the invertors and erect plant on the "Talbot system," thus dispensing with invertors and centre cranes. No accidents from invertors or centre cranes have been reported during the year.

Men's Workshops.

I am glad that something has been done to get an abstract for these workshops. Many premises will be the better of this, as in visiting we have something to look for, and again, when a young person was employed, the occupiers would not trouble to find out the name of H.M. Inspectors of the district, but left it till either the sanitary inspector or H.M. Inspector found it out; now he can plead no such excuse.

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Means of Escape in Case of Fire.

At the end of 1899 there were on our register 186 places marked as defective in this respect; this number was reduced by the end of last year to 79.

In Glasgow the city authorities are making a systematic inspection of every work-place in the town; those found dangerous as regards fire or deficient in means of escape in case of fire are noted, and the necessary steps taken to remedy the defects. It is hoped that the work will be completed during the current year. I should add that the City of Glasgow Buildings Regulation Act which came into force on 1st January, 1901, gives the local authorities considerably increased powers as regards danger from fire in both existing and new buildings.

In the next contribution the regulation of the Glasgow Corporation referred to here is quoted in full.

Mr. Buchan (Glasgow) :—

New Buildings.

I sometimes find upon visiting new factories, even now, that doors of rooms in which more than 10 persons are employed neither open out nor slide. Though this requirement has been statutory for four years, the occupiers, upon being informed of it, usually tell me, with a look of astonishment, that the plans were passed by the Dean of Guild. It would save needless expense if our department communicated with the various authorities throughout the country as to any such structural requirements. This difficulty has apparently been taken into account by the Corporation of Glasgow, for in the Glasgow Building Regulations Act, 1900, section 112 reads as follows:—

> "In every application to the Dean of Guild for a decree of lining for a building to be used as a factory or a workshop the Dean of Guild, before granting such decree, shall require evidence to be submitted to him that the requirements with regard to provisions for escape in case of fire contained in the Acts for the time being in force with respect to factories and workshops are satisfied as far as practicable to such buildings."

Mr. Lauder (Glasgow) :—

Fencing of New Machinery.

With regard to the fencing of new machinery, I am pleased to say that there is a decided improvement in the district. Several of the large firms, who make engineers' machine tools of all kinds, now send out their machines with the necessary guards for spur and bevel wheels fixed in place, and I have succeeded in persuading several others to follow this good example. Some of the makers, indeed, are following the lines of our American rivals with respect to the fencing of their machines, and this leaves little to be desired at our hands.

Finally, *Captain Kindersley*, *Mr. Snape*, and *Mr. Buchan* send some drawings and photographs of guards that have come under their notice during the past year, some of which have and some of which have not been mentioned elsewhere in this Report.

Mr. Buchan (Glasgow) :—

1st. For a paper-folding machine.—This guard is very simple and yet effective, consisting as it does of a sheet of plate glass, carried by two brackets, which prevents the operator from putting her hand below the folding knife and at the same time does not obstruct the view.

2nd. For a brick press.—This guard consists of a sliding fender which moves along the bars G, and has a vertical motion transmitted to it from the crank C by the levers D and E and the chains F. The vertical travel of the fender is greater than that of the press, so that when they descend the fender gets down first, and should the operator's hands be still at the dies they are instinctively withdrawn upon being touched by it, and as it is light and suspended by a chain there is no possibility of the worker being hurt by the guard.

3rd. For surface-planing machines.—During the year Messrs. William Cook & Sons, Glasgow, patented a Combined Hand Roller-Feed and Safety-Guard for Surface-Planing Machines, of which I forward sketches and description.

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4th. For spindle moulding machine.—The same firm has also invented a guard for these machines, of which I forward three photographs showing it fitted (1) for circular work; (2) for straight-work against the fence; (3) lifted off the bench.

While speaking of guards I will just allude to the dangers arising from low hoist gates. After the accidents that have come under my notice from this source, I now consider it an absolute necessity, especially on middle floors, to have hoist gates so high that no one can look over them and thus be caught between the descending cage and the gate. Where this is quite impracticable, the danger is very much lessened by fixing a bar to the top of the gate so that it stands out in front a distance of about one foot.

I desire to express my strong sense of the ready and efficient service rendered by all Inspectors in this Division.

I am, &c.,

R. WHATELY COOKE-TAYLOR,

H.M. Superintending Inspector of Factories.

H.M. Chief Inspector of Factories.

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ANNUAL REPORT ON THE WORK OF HIS MAJESTY'S WOMEN INSPECTORS OF FACTORIES IN 1900.

TABLE OF CONTENTS.

	Page.
1. General Scope of the Work of 1900:	
(a) Conditions under which the work was carried on	348
(b) Works assigned to Miss Deane	349
(c) Special enquiries and reports	351
(d) Number of visits and ground covered	353
2. Complaints Received and Investigated:	
(a) General analysis	353
(b) Number received by Miss Deane	355
(c) Complaints outside the Acts	356
3. Prosecutions and Decided Cases:	
(a) General summary	356
(b) Miss Deane's table of prosecutions	358
(c) Decided cases and prosecutions of special interest	358
4. Sanitation:	
(a) Work of local authorities	360
(b) Separate, suitable and sufficient sanitary accommodation	362
(c) Temperature	365
(d) Ventilation	366
(e) Underground workrooms	367
(f) Ancient lights	368
5. Unhealthy and Dangerous Occupations:	
(a) Summary of work	368
(b) Potteries	368
(c) Enamelling works	370
(d) Lucifer match factories	370
(e) Tinplate works	371
(f) Aërated water works	372
(g) Precautions against wetting	373
(h) Lifting heavy weights	375
(j) Vibration	375
(k) Dust and overalls	376
6. Security:	
(a) Relating to general work of staff	376
(b) Miss Deane's work in laundries	377
7. Industries with Excessive Hours:	
(a) Special reports on laundries	380
(b) Fish-curing	387
8. Physical Fitness	389
9. Pauses in Employment:	
(a) Mid-day meals and five-hours spells	396
(b) Holidays	399
10. Separate Departments in Factories and Workshops	399
11. Convent Industries	399
12. Particulars to Pieceworkers	400
13. Truck	403

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FACTORY DEPARTMENT,
HOME OFFICE.

H.M. Principal Lady Inspector of Factories,
66, Victoria Street, Westminster.

SIR,

1. General scope of the work of 1900.

I have the honour to present my fourth Annual Report on the work of the Inspectors of my staff.

(a) Conditions under which the work is carried on.

As the year 1900 is distinguished from all preceding it for the Women Inspectors by their assumption of their first defined area of responsibility for enforcement of the law, I may be permitted to recall attention to previous steps in the growth of this branch of the staff, and to the fact that 1900 is like 1895 a year in which no addition has been made to the numbers to overtake the work. In 1893 two Lady Inspectors were appointed, and again the same number added in 1894. The next addition was in the beginning of 1896 (the year of the first step towards organisation of the staff of women under their own superintendent), and since then annually, until 1899, addition of one Inspector was made to the staff. With the immense growth in amount and kind of work, resulting in a considerable degree from successful efforts of the women appointed to meet the possibilities that lay before them, it is only right to point clearly to the fact that the staff is, paradox though it may seem, far less adequate now to meet what may properly be expected of a staff of Women Inspectors than it was in its first years. With from six to eight years' service behind them even older members of the staff in the main still carry on, on the same basis as at the beginning, the ever accumulating details of a clerical kind, without clerical help, travelling as before, while striving to meet the higher claims that press themselves forward. Thus able workers are steadily more overstrained as their years of service increase, and acquired ability cannot be applied in the most effectual way for the service. Promotion not yet being provided for in this branch as it is in other branches of the services, no material encouragement lightens or rewards strenuous work.

In legal work alone there has been a considerable advance in the variety and difficulty of the work undertaken, while in all the complex questions, touching especially wages and health, investigation and negotiation with employers take a more important place than ever before, and in every direction there is ready scope for the best, most trained, and most versatile women of mind and character. The greatly improving machinery of administration and simplified methods of co-operation between the branches of the service necessarily widen possibilities of work, and although inspection will probably always demand as the first and most desirable qualification in its officers, certain indefinable qualities of sympathy and insight, the need for special knowledge, scientific and legal, grows. Fortunately, these became more and more obtainable, and the standard of mental acquirement cannot be placed too high in selection of candidates.

With the exception of the interesting work to be reported on as the outstanding feature of 1900 which is under *Miss Deane's* charge, and carried on by her with the help of other members of the staff, many features of the general official employment have been very similar to those of 1899. I have, fortunately, found some time since the methods of recording the work of the staff and office have been established, and the records are being well and carefully kept by my clerk, *Miss Northcott*, to re-enter on more active duty and to personally undertake two or three special enquiries, though this active work is not yet as extensive as I shall hope to make it. *Miss Paterson* has increased her visits in Scotland, but still laments the many important industrial areas there unvisited. She says :—

> It has again not been possible to devote any time to inspection in the East Scotland district (with the exception of Dunfermline), nor in the North Scotland district, with the exception of some special visits during the herring fishing season. I hope to be able to repair this in 1901, for, in my opinion, Dundee, and indeed the whole of Forfarshire, with its mass of child labour in the overheated spinning-rooms of jute mills, with its low standard of sanitation, and its great demand for cheap unskilled labour, seems to require the services of a woman inspector at least as much as any part of the kingdom. The ever increasing office work, however, which cannot be left undone, the copying, registering, and filing of papers necessary, if anything like

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a complete record is to be kept, absorb much time, and I find (mechanical although the work is), much energy It has been my duty to act as your deputy during some weeks of the year, and in the time remaining for actual active inspection, it has been difficult to find time to do more than attend to special demands and complaints. During the year I have visited (in most cases several times) in Scotland: (in addition to Glasgow), Edinburgh, Galashiels, Hawick, Innerleithen, Paisley, Dunfermline, Fraserburgh, and Peterhead; in England: Manchester, Blackburn, Ramsbottom and neighbourhood, Whalley, Newcastle, Hebden Bridge, Todmorden, London, and Yarmouth.

(b) *Miss Deane's work.*

During the first three months of the year *Miss Deane* spent part of her time inspecting earthenware and china works with me in the Potteries District, but a larger part in Ireland helping *Miss Squire* in many of the difficult tasks arising in her Truck enquiry in various parts of the north-west, much of the ground being familiar to *Miss Deane* through her experiences in Ardara and neighbourhood, detailed in the Annual Report of 1897–8. The main and heavy work of the year for *Miss Deane* has lain, however, in the successful development of the experiment recommended by the Factory Staff Committee, my office preparations for which, with an additional clerk, I described on pp. 238 and 239 of my last Annual Report. It was there shewn that the work has begun with the entire charge of the court dressmakers and milliners, and steam and hand laundries in the West London boroughs, besides Acton and Chiswick. After hardly a year of working this experiment, it might seem almost too soon to pronounce an opinion on its possibilities, but I think, Sir, that you who have been cognisant of every essential step in its progress, whether questions of policy in administering the Acts or methods of office organisation had to be considered, and who have given so much understanding support to every development we attempted, will now endorse my opinion that the work already done by *Miss Deane* has fully justified the new departure. While I have abundant reason to recognise and value the single-minded way in which she has made her own, any method or policy I had reason to put forward, the variety and interest she has brought out in every direction in her present task of administering the Acts in a limited number of industries, have been remarkable and stimulating. Although completion of the first round of inspections has been slower than we could have wished, through various causes, yet on every side there is progress, in relations with the courts and local authorities no less than with employers and workers, and in increasing health and safety, and understanding and respect for the law in the workplaces, as subsequent details in this report will, I believe, shew. In the active duty of inspection she has had the continuous assistance of *Miss Vines*, to whom the experience and training gained by working under *Miss Deane's* guidance, ought to prove of future value. *Miss Deane* has also had the assistance since the autumn of a considerable part of *Miss Sadler's* time; only occasional inspections to deal with pressing complaints or special groups of workshops have been made by other colleagues. Including the work of weeding out all the obsolete entries of occupiers dead or retired, on the registers handed over to me, more than half the laundries and workshops were dealt with by visits in the course of the year, in addition to written communications with all. As the details in *Miss Deane's* following report shew, much time for active inspection was lost during the long illness of *Miss Baines*, the clerk I selected for her office, which detained over clerical work more than one Inspector. Much well-spent time was given also by *Miss Deane* at the outset to considering and elaborating a useful system of circular forms of instruction, suitable for dealing with the multitudinous technical points that assail a busy District Inspector in daily correspondence. The results of such correspondence and all other papers relating to the district, are filed on the same system as the card register of laundries and workshops described in my last year's report, for hints towards development of which I am indebted to Monsieur Laporte, Superintending Inspector for the Seine, and who thus (July 9th, 1900) expressed his anticipation of the satisfaction which we, indeed, find in working it:—

"Je viens de reçevoir le Rapport de Monsieur l'Inspecteur en Chef, pour l'année, 1899.

"Je m'empresse de vous addresser mes respectueux remerciements pour vos appreciations si bienveillants sur le service de l'Inspection à Paris.

"Je vois avec plaisir que vous avez adopté notre système de fiches. Il n'est pas douteux que vous en aurez une grande satisfaction."

The lines laid down by the Secretary of State's Instructions for my guidance in superintending this defined part of the work in London, left the widest scope for working out methods and details, and for apportionment of the work to Inspectors of this staff. One of my chief aims, after choice of the Inspector to whom the work was best assigned, has been so far as possible to see to provision of the machinery needed to secure

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maintenance of system, laying down instructions supplementary to those of the Secretary of State only where it appeared needful to secure consistent adherence by the various Inspectors engaged on the work to the guiding policy, which was developed almost as much by full discussion of the concrete cases arising for decision as by steady application of a few simple guiding ideas.

It is remarkable how rapidly, even on the top of the initial difficulties and confusions, the advantages of such a plan can show themselves. On the one hand there is free scope for every sort of energy and originality in the work, while each Inspector can see in the records themselves what she has done; on the other hand these very records, in a great measure, ensure to the persons affected by the law and administration the certainty and equality of treatment which are indispensable.

Miss Deane, in her report, comments at the outset on the unexpected amount of time that is required for such construction :—

> While there is an undoubted advantage under such circumstances in starting free of pre-existing systems and methods, which would have to be mastered and might need re-modelling, it is also true that to begin "at the very beginning," literally making one's "machinery," and evolving the very elements of a method as one goes along, is a process which, interesting as it may be, takes much time. The transference from one office and branch of the staff to another of the control, not of a whole district, nor of certain definite portions of it, but of numbers of places scattered throughout the entire length and breadth of it, is, to say the least of it, a confusing and troublesome task, and innumerable have been the questions of detail to be dealt with, each of which, forming as it did a precedent for others, required careful consideration.
>
> The mere disentanglement, separation, and arrangement of the correspondence and notices have entailed days of office work. For months letters and notices have had to be forwarded or retrieved from the office of the District Inspector or the Home Office. Occupiers appear to have an invincible objection to the perusal of notices or letters relating to change of address.
>
> So important has it been to place on a perfectly sound and practical basis the office machinery of the area and the routine of office work, and now that this task is accomplished so valuable are the results that not a moment of the time thus spent can be considered lost.
>
> The value of this method of registration and recording was strikingly demonstrated within a few months of its establishment in my office. Two "racks" and slide-rods, capable of containing each 1,500 "cards," on each of which is inscribed the address of each workplace, and capable of shewing the outline record of ten or more inspections, were sufficient for the needs of the area when the transference from the District Inspector's register to mine was first made.
>
> Within six months hundreds of the transferred addresses had been thrown out of the "racks" as no longer in existence, and their places taken by others at which it was found workshops existed.
>
> At the end of the year four "racks" are found only just sufficient to meet the necessity of the case. Had the register been in the old book form, I have no hesitation in saying that it would have had to be entirely re-cast and re-written twice at least during the first year of my charge.
>
> As it is, the register has been automatically corrected, expanded and re-arranged, and at any given moment during the whole period has been in perfect order and sequence—as free from the slightest confusion or "erasure" as when absolutely new.
>
> The re-organisation and the alterations in the boundaries of the boroughs forming the sanitary areas in London in consequence of the new Local Government Act have entailed an additional amount of office work, and but for the ease and simplicity with which the register and the correspondence and filing in the office can be altered or corrected would have caused very serious confusion.
>
> The arrangement of registers, records, correspondence, notices, and so forth, all follow the same system, the aim secured being that every single fact and the whole history of each workplace can be promptly arrived at by any member of the factory staff who may require it, even in the absence of the inspector in charge or her clerk. To this end the notes of each visit taken on the spot are all filed in the same order and sequence as the register, and are available to any other inspector revisiting at a later date.
>
> The whole charge can thus be taken up or laid down or transferred at any moment without any dislocation or confusion.
>
> The fact that the area of workplaces consist of (1) laundries, (2) trades in which special exceptions as to overtime, alterations and differences in meal-hours, holidays and half-holidays, &c., are very largely taken advantage of, emphasises the need for some such complete and definite control and record of the notices and documents required under these "exceptions."

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The fact that the despatch by an occupier of an irregular overtime notice, or an alteration in meal-hours without due notice, immediately results in a communication requesting an explanation or calling attention to the irregularity, has already done wonders in ensuring careful attention to all the conditions under which special exceptions are permissible, and gives to occupiers and workers that sense of being in constant touch with the inspector which is essential to the effective carrying out of the law. But the labour which this has involved during the first year has been very great. The break-down in health, in May, of *Miss Baines*, the lady whose work as clerk in the office has been invaluable, formed a most serious drawback in the very middle of the busiest season of the year, and during her absence on sick leave the work fell on me, and on *Miss Vines* who assisted me. Such temporary help as could be procured during the two months of *Miss Baines'* absence was naturally of a character which rendered it useful only for the simplest routine tasks.

(6) *Special enquiries and reports in 1900.*

In 1900 this work has been planned and the general methods of action thought out; the further, and I believe still more interesting, work of coming into the full personal touch with employers and workers, which can only be obtained by constant visiting in the workplaces under control, has well begun and will fill the current year. The principles of separation of workplaces on the border-land between the charge of the Inspector for the West London district generally and *Miss Deane's* charge, and the methods of co-operation between them in questions of safety in steam laundries, so far as this can be attained by fencing of machinery, have been well established by typical cases. The number of these referred to me for decision has steadily diminished, earlier decisions having practically guided in the later circumstances. In the absence of precise definition of the trades handed over, and in the natural links between subsidiary processes, a certain fringe of workplaces had to be adjusted on the two registers; for example, nice questions can arise over the extent of application of the term "millinery," which even at the outset applies to that which is surely the most mutable of all the products of industry, and workplaces can be found engaged in the business of making some of the many accessories and forms of "dress," of which it cannot with certainty be said whether the product made in them has attained or not to the development of a trade distinct from "dressmaking." A wide interpretation has been given throughout, the aim being to include the characteristic problems of a season industry in a great centre. The nature of these problems is indicated in the following sections of this report, as also the work to be done in the other great staple industry for women in West London—the laundry industry. There, in addition to irregular hours of employment, special questions of safety and health have pressed for consideration. The subsequent section on safety will, I think, shew that the strides in securing proper fencing have been great, and fully as important as the decided steps that have been taken towards control of hours by rigid application of requirements as to notices (see below, section on laundries). Out of 185 factory laundries, 170 have been inspected in the year, and two-thirds of the workshop laundries.

In addition to many reports on special factories, I have received from *Miss Paterson* general reports on :—

(1.) Payment of wages in goods, and illegal deductions in Dunfermline damask factories.

(2.) Sanitary accommodation in Dunfermline factories.

(3.) Herring industry in Scotland.

(4.) Need for particulars in shirt and collar and underclothing trades.

(5.) On deductions in tweed factories.

(6.) Factories executing War Office and Admiralty contracts.

(7.) Particulars clause in the wholesale tailoring trade.

A particularly interesting report from *Miss Paterson*, on the results, so far, of an enquiry which I hope will be extended and fruitful, into the results of rejection of children and young persons who are candidates for certificates of physical fitness for employment in factories, is given below. (*See* section 8, p. 389.)

For *Miss Squire* the first six months of the year were mainly absorbed by legal proceedings arising out of her investigation, in County Donegal in the autumn of 1899, of the prevalent evils of the Truck system, as it concerns outworkers. She says :—

My own personal share—rendered inevitable by the peculiar set of circumstances—in every step of the legal work and formalities entailed by several "appeals" to the High Court, obliged me to make several prolonged stays in Ireland, and to take frequent journeys backwards and forwards to England. Long cross-country drives in Ireland had often to be taken to carry

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out some formal act—commencing with a drive on New Year's Day which lasted, without pause, from 8 a.m. till 8 p.m., in an open car in pouring rain. *Miss Deane*, at the beginning of the year, shared with me the strange experiences of our peculiar situation, and to her I am indebted for invaluable assistance in the difficult and unaccustomed tasks which devolved upon us.

The autumn of the year was again devoted to carrying out investigations among outworkers in rural districts as to the payment of their wages, this time in England, and as in Ireland, so in Somerset and Cornwall, the Truck system was found to have enslaved the home workers. (*See* also under Truck.)

As a natural consequence of undertaking special enquiries as to the observance of the Truck Acts among outworkers, a very large proportion of my official visits have been made to the homes of workers. Some weeks this autumn were spent in visiting outworkers only; in this work the lists sent in by employers are a very great assistance. In quite rural districts their chief use is the indication they give of a particular locality as a field for enquiry, but that the name of a village is given as the residence of a particular worker, or a number of workers, by no means shows that they will be found there; the village reached, much patient searching is often necessary before the persons appearing in the list are traced to their scattered cottages, hidden up bridle-paths, or nestling on the hill sides, some miles from the village which gives them the only address possible.

Among the hundreds of workers thus visited and interviewed this year, there was not one that did not give a ready welcome, and show an almost pathetic confidence in their visitor's power to help them.

Other special enquiries carried out by *Miss Squire* related to:—Convent industries in Ireland; women's and girls' employment in (*a*) tin-plate works in South Wales and Gloucestershire, and (*b*) brickworks in the Midlands; (*c*) application of the Particulars Section to manufacture of steel pens in Birmingham also engaged her attention, and systematic inspection was given to (*d*) aerated-water works in London and Birmingham (Special Rules); (*e*) laundries in Dublin and London (sanitation); (*f*) wholesale tailors in Bristol and Leeds (enforcement of Particulars Order).

Miss Tracey's official employment was again largely in the South and South-west of England, and in the latter she visited explosives factories and most of the tin-streams, in which she notes that introduction of labour-saving machinery is resulting in "displacement of labour, male and female." She further reports:—

Much of the existing plant is idle now, the amount of tin extracted not paying for the working, and in this way also women have disappeared from this interesting industry. The pay is extremely small, but the work is not very arduous, much of it being conducted entirely in the open air, and by this means many of the women have regained the health they lost in service, or in other industrial pursuits.

The personal cleanliness of the workers is a striking feature of this trade, and I was able to add considerably to their comfort by seeing that the sanitary accommodation, to which they are legally entitled, was provided for them. Marvellous new machinery has recently been erected on one or two of the largest "stamps." Only once did I come across a woman engaged in "spalling" (breaking up large stones into small ones), and the men who were shovelling the stuff into the cart remarked to me on the unsuitability of such work for a woman, "but there," as one man said to me, "one must live." In Cornwall, where women may still be seen breaking stones by the side of the road, this work does not, perhaps, seem so strange, but to me it appeared a deplorable necessity.

Miss Sadler spent a short time in the Glasgow and Edinburgh districts early in the year, in order to acquire some experience of the difference between Scottish and English legal procedure, and to aid *Miss Paterson* in outstanding work, clerical and active, in Glasgow. Pressure of complaints to be attended to brought her South, and I found it most convenient, eventually, for overtaking some of the urgent first visits in *Miss Deane's* assigned area, to retain *Miss Sadler* in London for the remainder of the year.

In addition to superintending the new and the old work, and making many special reports on interpretation and administration of the law, and amendments needed in the law, I made special visits to earthenware and china works in Staffordshire and other parts of England; to enamelling works in London, Lancashire, Scotland and the Midlands; to silk factories in Macclesfield, Coventry, and Derby; to steam and hand laundries in London, and to fruit preserving works in London and Lancashire.

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Comparing in the broadest way the main work of the branches with the work of other years, the following figures show that under each section of active work there is a distinct rise in totals, in addition to increased work of a clerical character.

Year.	Factories.	Workshops.	Other Visits.
1898	1,272	1,889	2,100
1899	1,258	2,369	1,800
1900	1,342	2,381	2,233

In the last column appear, in addition to all attendances at Petty Sessions, visits to schools, local authorities, &c., all the scattered visits to outworkers in lonely country districts, with long drives or bicycle rides intervening. Forty-five thousand and twenty-three miles were officially travelled by us in 1900.

2. Complaints received and investigated.

The increase in the total number of complaints received in this branch of the department to 644 from 494 in 1899, and the increased proportion of those investigated, is mainly attributable to the West London area where every complaint received could from the nature of the circumstances be more promptly dealt with. Out of 282 complaints received in Miss Deane's area, only 15 remained on December 31st to be investigated, as they promptly were in the beginning of the year. Too large a total, 100, remained in the whole country outstanding, through insufficiency of staff to overtake them in the time. Numerous complaints from earthenware and china works and particularly the "potteries" district following my visits, there accounted for a large proportion of these uninvestigated complaints. These must be dealt with early in 1901 if possible.

Out of 644 complaints, 225 were anonymous, 189 signed by workers or their friends, 199 were from various organisations and 31 from public officials, local or central.

Table A.—Complaints Received and Investigated during 1900.

—	Nature of Complaint.	Number Received. (1.)	Number Investigated. (2.)	Number upheld on Investigation. (3.)	Number not traced through insufficient address, or not upheld at time of Inspection. (4.)	Number awaiting Investigation on Dec. 31st, or referred to District Inspector. (5.)
A. *Administration.*	1. Want of abstract and notices ...	11	6	5	1	5
	2. Evasion of Inspector	1	1	1	—	—
B. *Sanitation and Safety.*	3. Want of separate, or insufficient, or unsuitable sanitary accommodation.	52	50	47	3	6
	4. Insanitary, or dirty, or damp, or ill-ventilated workrooms.	52	41	31	10	17
	5. Overcrowding in workrooms	29	26	19	7	11
	5A. Gas fumes in workrooms	3	2	1	1	1
	6. Extremes of temperature (*a*) heat...	4	3	2	1	1
	6. Extremes of temperature (*b*) cold...	24	22	19	3	2
	7. Infringing Special Rules	9	—	—	—	9
	8. Dangerous or unhealthy processes and excessive dust.	16	11	11	—	5
	9. Wet and bad floors in jam factories and laundries.	7	7	7	—	—
	10. Want of fire escape and locked doors...	6	4	2	2	2
	11. Want of fencing...	9	9	7	2	7
	12. Accidents...	8	6	5	1	2

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Table A.—Complaints Received and Investigated during 1900—*continued.*

—	Nature of Complaint.	Number Received. (1.)	Number Investigated. (2.)	Number upheld on Investigation. (3.)	Number not traced through insufficient address, or not upheld at time of Inspection. (4.)	Number awaiting Investigation on Dec. 31st, or referred to District Inspector. (5.)
C. *Illegal employment.*	13. Illegal employment and employment before and after legal limits.	142	116	76	43	23
	14. Neglect to observe Sundays and holidays.	8	7	6	1	1
	15. Employment in meal times and exceeding five hours' spell.	60	54	46	8	5
	16. Giving work out to be done at end of legal day.	3	3	2	1	—
	17. Employment of young persons over time.	2	2	2	—	—
	18. Employment of young persons without certificate of fitness.	1	1	1	—	—
	19. Employment of woman within four weeks of childbirth.	1	1	—	1	—
	20. Employment of milliners in shop and workshop excessive hours.	3	3	3	—	—
	21. Excessive hours in laundries	34	34	28	6	1
	21A. Employment of children for excessive hours in laundries.	1	1	1	—	—
D. *Truck Acts* ...	22. Payment of wages not in current coin	4	3	3	—	1
	23. Excessive or illegal fines or deductions	25	19	19	—	7
E. *Particulars Section.*	24. Lack of particulars of work and wages to piece-workers.	26	16	14	2	10
F.	25. General or indefinite complaints ...	19	18	12	6	—
	Total complaints within the Acts ...	560	468	370	99	109
G. *Outside scope of the Acts.*	26. Underground workrooms	8	7	6	1	1
	27. Messrooms insanitary or wanting ...	13	11	11	—	1
	28. Absence of sanitary accommodation in type-writing office.	1	—	—	—	—
	29. Absence of sanitary accommodation in receiving house.	1	—	—	—	—
	30. Long hours in laundries	7	5	4	1	—
	31. Two five hours' spell without a break	2	—	—	—	—
	31A. Two five hours' spells with one hour dinner between.	1	1	1	—	—
	32. Variation of meal times in laundries...	3	3	2	1	—
	33. Bad conditions and long hours in laundries not regulated by Act.	3	3	3	—	—
	34. Employment on Sunday in laundries...	2	2	2	—	—
	35. Meals taken in factory	1	—	—	—	—
	36. Bad or insufficient food	1	1	1	—	—
	37. Absence of cooking convenience ...	1	1	1	—	—
	38. Only half hour allowed for dinner ...	9	9	9	—	—

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Table A.—Complaints Received and Investigated during 1900—*continued.*

—	Nature of Complaint.	Number Received. (1.)	Number Investigated. (2.)	Number upheld on Investigation. (3.)	Number not traced through insufficient address, or not upheld at time of Inspection. (4.)	Number awaiting Investigation on Dec. 31st, or referred to District Inspector. (5.)
G. *Outside scope of the Acts* —cont.	39. Meals taken in room where soiled linen is sorted.	1	—	—	—	—
	40. No seats for shop-assistants	1	—	—	—	1
	41. Bad condition of lavatories	1	1	—	1	—
	42. Cold in wardrobe room of theatre ...	1	—	—	—	—
	43. Workers' bedrooms dirty or overcrowded.	2	1	1	—	1
	44. Children carrying heavy weights ...	2	2	1	1	—
	45. Brutal treatment of children and Immorality.	2	2	2	—	—
	46. Improper conduct of manager ...	1	—	—	—	—
	47. Harsh treatment	1	—	—	—	—
	48. Permitting drunkenness in mills ...	2	2	2	—	—
	49. Bad ventilation in an exhibition ...	1	1	1	—	—
	50. Girls employed in receiving office under glass roof with no shade or blind.	1	1	—	—	—
	52. Long hours in fish curing places ...	1	1	1	—	—
	53. Lack of particulars of wages to piece-workers in hardware factories.	2	2	2	—	—
	54. Compulsory and unpaid work... ...	2	2	2	—	—
	55. Reduction of wages	1	1	1	—	—
	56. Delay in payment of sick benefit ...	1	—	—	—	1
	57. Paying wages in meal hours	1	1	1	—	—
	58. Failure to obtain wages	1	1	1	—	—
	59. Workmen's Compensation Act ...	2	—	—	—	2
	60. Discharged without or with insufficient notice.	3	2	2	—	—
	61. Inconvenient position of boilers ...	1	1	1	—	—
	Total of complaints outside scope of Acts	84	64	58	5	7
	Total of complaints within scope of Acts	560	468	370	99	109
	Grand Total	644	532	428	104	116

In this table the classes of matters which show greatest increase in number since the previous year are under group C, illegal employment and particularly excessive hours in laundries and under group E, particulars section, both doubtless due to the fact that the workers and Inspectors were in nearer touch with each other.

Miss Deane's returns show the majority of complaints in her area to be on questions of times of employment. Some of these are outside the scope of the Acts, *e.g.*, nine complaints of half-hour instead of an hour for dinner; five of long hours in laundries;

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eleven complaints were received by her of insanitary messrooms, and six of underground workrooms. Altogether she received 228 complaints within the scope of the Acts and 52 outside.

Miss Squire sends me notes of complaints outside the scope of the Acts, the subjects of which merit attention :—

> "A complaint reached me when in the West Riding of Yorkshire, of brutal treatment of little girls by the overlooker in a spinning mill and even by the master himself. It seems scarcely credible that nowadays little 'Doffers' should be knocked down by grown men, violently struck on head and shoulders, their heads pushed down upon the spinning frames, yet the evidence of the little half-starved undersized creatures who had suffered in all these ways at the hands of a burly overlooker, and a tall imposing member of the firm of employers, was too strong to be doubted. When tackled with such conduct and warned, neither denied the charge, both preserved a shamefaced significant silence.
>
> "Another complaint referred to me with that confidence so often shown by the workpeople that the Factory Inspector can put everything right, but with which I have no powers to deal, was of rude horseplay and improper behaviour among themselves of young girls in an isolated manufactory situated in a forest far away from any dwelling. After a visit I felt that the need of a forewoman or some elder woman in authority in such a place is very great, and I did the only thing I could do, urged my opinion upon the employer, himself generally absent. Here were over a hundred young girls leaving their homes in the early morning, and returning at evening walking through four miles and more of lonely country, spending the day in parties of 12 to 13 in separate huts or rooms, no elder person in any hut to supervise the occupants, no one to exercise control but a foreman, who has his own work among the other men and boys who occupy huts in the same enclosure
>
> "I have thought it my duty also in another instance to urge the employment of an adult woman to supervise a number of young girls; this was in the case of an isolated factory which boasts a philanthropic purpose, and is to be found in a desolate part of Ireland. Here only quite young girls are employed among men and boys, with whom they are shut up in the factory for 10 hours daily. There is no older woman to keep a watch over them, and the manager is often absent on business in London and elsewhere. There were no complaints and the girls to all appearance were quiet and well behaved, but the conditions are not without danger and low wages paid attract only girls of an age and of a class from which one cannot look for a high degree of self respect and decorum.
>
> "In contrast to such instances are the factories, happily an increasing number, where women of intelligence, refinement and kindliness are placed as Superintendents or Forewomen in charge of all the employés, and, worthy of their great trust and responsibility, exercise a wonderful influence for good over the women and girls whom they control."

Miss Vines refers to complaints of workshops occupied by Jews :—

> "Investigations of complaints with regard to employment of Jewish occupiers in the same week, both on the Christian Sunday and the Jewish Sabbath confirm me in my opinion, that in this particular the provisions of the Factory and Workshops' Act are frequently infringed. It is not that the same worker is usually employed on both days. This is not as a rule the case. Generally, Jewesses only are employed on Sundays, and Christians on Saturdays. However, it is well to remember that although these are not cases of hardship to the workers, such a practice confers on manufacturers who disregard the law an unfair advantage over those who obey it."

3. *Prosecutions.*

(*a*) *General summary.*

I have prepared Table B for 1900 in two parts, of which the first covers the whole of the cases taken by myself and my staff into Courts of Summary Jurisdiction, and the second those only which were taken in *Miss Deane's* area. The rise in average penalties obtained is good for the whole, but is much more striking in the West London area. For the whole staff the average penalties have risen from 15*s.* 4*d.* to £1 3*s.* 9*d.*, but in *Miss Deane's* case, where Metropolitan Police Courts only are in question, the average penalty is £2 6*s.* A single year's experience yields no positive conclusion as regards figures; where less than a hundred cases are concerned one or two offences to which the law attaches high penalties may raise the average exceptionally, and comparisons are more interesting over a series of years. So far, however, it is very satisfactory that the average has risen, and there is no doubt that the support *Miss Deane* has obtained from the magistrates has made fewer prosecutions necessary, and has furthered our objects in other ways.

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Table B (1).—Prosecutions during 1900 (Whole Staff).

Class.	Nature of Offences.	No. of Occupiers Prosecuted.	No. of Cases taken.	No. of Cases dismissed and withdrawn.	No. of Convictions.	Penalties.	Costs.
						£ s. d.	£ s. d.
A. *Administration.*	1. Failure to keep register of young persons and children in factory.	4	4	—	4	3 15 0	1 9 8½
	2. Failure to notify occupation of workshop.	3	3	—	3	10 0 0	0 14 6
	3. Failure to affix Abstract	9	9	—	9	11 0 0	2 9 8
	4. Failure to specify on notice the period of employment.	2	2	—	2	4 0 0	1 3 0
	5. Failure to register, report, and affix particulars of overtime.	3	20	4	16	15 0 0	2 17 0
B. *Sanitation and safety.*	6. Allowing workshop to be overcrowded during overtime employment.	1	1	—	1	5 0 0	0 2 0
	7. Failure to limewash	1	1	—	1	0 10 0	0 5 6
	8. Failure to keep register of accidents ...	2	2	—	2	5 0 0	0 12 6
	9. Failure to send notice of accidents ...	2	3	—	3	7 0 0	1 4 6
C. *Illegal employment of protected persons.*	10. Employment of child otherwise than in morning and afternoon sets or on alternate days.	1	1	—	1	0 10 0	0 5 6
	11. Employment of women and young persons for more than five hours continuously without interval for meal.	5	10	—	10	12 12 0	4 4 3
	12. Employment of women during the meal hour.	2	8	—	8	4 15 0	1 16 6
	13. Employment of women before and after legal limits.	8	21	—	21	34 0 0	6 8 0
	14. Employment of young persons before and after legal limits.	9	21	—	21	27 10 0	8 11 9
	15. Employment of women and young persons after legal limits on half-holiday.	5	11	1	10	10 10 3	2 14 0
	16. Employment of women and young persons on statutory holiday.	1	3	—	3	5 0 0	0 16 6
	17. Employment of young persons without certificate of fitness.	12	44	—	44	35 13 0	10 9 2
	18. Employment of women and young persons in laundries beyond the legal number of hours.	4	12	—	12	27 10 0	5 11 6
	19. Employment of young person in an industry prohibited.	1	3	3	—	—	—
	20. Employment of women in room prohibited during meal-times.	1	1	—	1	0 10 0	0 17 0
D. *Special Rules.*	21. Failure to observe Special Rules ...	6	10	1	9	7 10 0	8 11 0
E. *Truck.*	22. Payment otherwise than in current coin.	7	18	4	14	5 0 0	9 10 10
	Total	89	208	13	195	232 5 3	70 13 11½

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Table B (2).—Prosecutions during 1900 (Miss Deane's Area).

Nature of Offences.	Occupiers Prosecuted.	Cases taken.	Cases dismissed.	Convictions and cases withdrawn and adjourned.	Penalties.	Costs.
					£ s. d.	£ s. d.
1. Failure to notify occupation of factory or workshop ...	3	3	—	3	10 0 0	0 14 6
2. Failure to affix Abstract	5	5	—	5	8 10 0	0 18 6
3. Failure to specify on notice the period of employment, &c.	2	2	—	2	4 0 0	1 3 0
4. Failure to register, report, and affix particulars of overtime in a laundry.	1	4	4	—	—	1 10 6
5. Allowing workshop to be overcrowded during overtime employment.	1	1	—	1	5 0 0	0 4 4
6. Failure to keep register of accidents	1	1	—	1	3 0 0	0 10 6
7. Failure to send notice of an accident	1	1	—	1	3 0 0	0 10 6
8. Employment of women and young persons for more than five hours without a meal.	3	3	—	3	8 0 0	1 4 3
9. Employment of women and young persons during the meal hour.	1	2	—	2	4 0 0	0 8 8
10. Employment of women before and after legal limits ...	3	11	—	11	25 0 0	2 16 9
11. Employment of young persons and after legal limits	1	2	—	2	10 0 0	0 10 6
12. Employment of women and young persons after legal limits on half-holiday.	3	7	1	6	10 0 0	1 11 0
13. Employing women and young persons on statutory holidays.	1	3	—	3	5 0 0	0 16 6
14. Employment of women and young persons in laundries beyond legal number of hours.	4	12	—	15	27 10 0	5 11 6
15. Employment of women after close of the specified period in a laundry.	1	3	—	3	3 10 0	1 8 6
Total	31	60	5	55	£126 10 0	£19 18 6

(o) Decided cases and prosecutions of special interest.

Last year I reported fully on the earlier stages of the protracted work connected with the endeavours to apply by legal proceedings the protection of the Truck Acts to the outworkers (shirtmakers and knitters) in West Donegal, on lines similar to those carried out successfully by *Miss Deane* in 1897 at Ardara. The view hitherto held was that these outworkers were as much protected by the law as in effect similar workers still are in England. To the immense disappointment of the Donegal peasant women, suffering as they have been from the impossibility of touching their sorely needed earnings in coin of the realm, and to the deep regret of this staff, the ultimate decision of the High Court at Dublin terminated for them (until the law is amended) the possibility of obtaining, by legal

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process on their behalf, redress of their grievances and impotence to control their earnings. The Court, while supporting us on one point, namely, our contention that examination and enquiry for the purpose of enforcement of the Acts could be legally made at a place on the employers' premises other than the place where work is given out to the workers, decided that the outworker, Mary McGeechan, was not protected by the Acts because the remuneration due to her was not "wages" (though, as the Court observed, the intention of section 25 of the Truck Act, 1831, seems to have been to make it so), because she was not under a contract to personally do the work. This decision was based on that in Ingram *v.* Barnes, which laid down that wages are the hire of a man who personally works, and that a person not being bound to do any of the work personally is not within the Truck Acts.

Where outworkers hold a strong enough position to make clear in their contract express or implied with the giver-out of work that they are not (as these peasant women are not) in the position of sub-contractors employing for profit other workers, this decision would not injure their prospects of securing payment in current coin of the realm. But our reports abundantly show that the peasant women in congested districts of Ireland are not in the position to impose their will upon any would-be employer, and unless the long campaign on their behalf, making clear, as it did, the injury they suffered, and thus enlisting the sympathies of the better section of public opinion, arouses some organised effort in their midst, they cannot hope for release in the meantime from the tyranny of uncontrolled payment in kind.

Most interesting work was done by *Miss Squire* (following on this Irish work) among the similarly situated outworkers in the glove industry of Somerset, and knitters of Cornwall. Here the nature of the contract and the class of manual labour necessary to execute the contract were in every respect similar to that of the Irish workers. We were prepared to test the application of the law as it had always hitherto been applied to such poor outworkers in England by prosecution of an appeal, if necessary, to the High Court, but in every case, as *Miss Squire* shows in this report which I give below under the section on Truck, the magistrates were unanimous in holding that the law, as it had hitherto been interpreted, must continue to protect these outworkers.

Other important prosecutions in 1900 taken by *Miss Squire*, which went forward on appeal, the decision being given in the current year, were under the Factory Acts. In a brickmaking works in which a large proportion of the manufacture consisted in the glazing of bricks by means of lead, young girls under sixteen were not only found at work, but on the most injurious processes, and much grave illness was medically shown to be due to their occupation. We held that their employment came within the meaning of the prohibition in the Act of 1878, section 38, first schedule subs. 3: "In a factory or workshop in which there is carried on (*a*) the making or finishing of bricks or tiles, not being ornamental tiles . . . . a girl under the age of sixteen years shall not be employed." Although it was shown by *Miss Squire* that the girls were employed in carrying plain bricks from the dust kilns to the dipping sheds, in dipping bricks required to be glazed, scraping or knifing bricks after the dipper, in carrying the bricks to the ovens where they were baked or polished, the magistrates decided to dismiss the summons. On the part of the employers it was contended that there was no absolute prohibition against employment of the girls in such a brickmaking works (as we alleged), and that the processes named did not constitute a "finishing" of bricks, inasmuch as the brick was a "finished brick" when it left the dust kiln. The Lord Chief Justice said the case must go back to the Justices. He was clearly of opinion that what was done in the factory where the girls were concerned was "finishing" of bricks, but he did not wish to decide the question whether there was an absolute prohibition against employing girls under sixteen in any part of factories for making bricks.

Another important appeal—Squire *v.* Fullers (Limited)—which turns on the definition in section 93 of the Act of 1878 of processes regulated by the Acts, will settle an important class of disputed cases on the borderland between workshop and shop employment. The decision of the learned Stipendary Magistrate was in the first instance in favour of the view of the Factory Department, but as the argument has not yet been heard by the High Court report of this must stand over to another year.[1]

[1] Since this was written the decision of the High Court has been given in support of the magistrate's view of the case, but it is too late to add the text of the decision in this year's report.

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The important decision in Tracey *v.* Pretty actually given, after twice re-hearing through exceptional circumstances in 1901 by the High Court, belongs to the history of 1899 to 1900, and is touched on below in the section on Sanitation and Local Authorities. It makes clear for the first time the meaning of the "proceedings" which are open in England and Wales outside the administrative county of London to one of His Majesty's Inspectors of Factories, whose duty it is to act in default of a local sanitary authority. It was established that a notice duly served under the Public Health Acts on an occupier requiring him to take definite steps to remedy a default was not open to argument before a Court of Summary Jurisdiction as to its "reasonableness" or otherwise. The Government Inspector acting in default assumes all the powers of the sanitary authority, acting on advice of their borough surveyor, and the magistrates have no authority or duty beyond that of enquiring whether the notice was lawfully served, and if so are bound to convict. Appeal as to the reasonableness of the notice lies, however, to Quarter Sessions, and in this case the course of the Factory Department is to begin the whole proceedings *de novo* in order to enable the occupiers in question to have full opportunity to prepare their defence.

A novel point in administration of Special Rules was raised in my prosecution of Messrs. Doulton's, Limited, at Burslem, which I have dealt with below in the section on "Potteries."

Miss Paterson had some interesting cases under the Truck Acts in Scotland, and the application of the "particulars" section to a non-textile factory, which are also touched on in their respective sections below. Further, she obtained convictions both in Scotland and England against manufacturers for illegal employment, under the specious excuse of "national emergency," of young persons or women on work that was certainly not Government contract work.

An interesting point was raised as to the meaning of "occupier" in connection with a conviction for illegal employment in a tailoring workshop where the protected persons were actually employed and paid by various journeymen tailors renting sittings in the workshop.

4. *Sanitation.*

(a) Work of local authorities.

The work of bringing defects remediable under Public Health Acts to the notice of Local Authorities has been considerably increased, and concentrated, as may be seen by the following comparison:—

Year.	Authorities.	Number of Defects.
1898	99	291
1899	70	273
1900	75	525

This is mainly attributable to the steady work in the area of West London, where 301 defects have been formally brought to the notice of nine Authorities, in addition to all the more general co-operation with the Authorities. In repeating my Table C as follows, I have thought it most convenient to retain in the general table the Local Authorities referred to in *Miss Deane's* return for purposes of comparison with other areas and totals for previous years; at the same time, I have marked with an asterisk the Boroughs and District Councils specially appearing in her registers.

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Table C.—Defects notified to Sanitary Authorities during 1900.

Places.	Defective Sanitary Accommodation in Factories.		Defective Sanitary Accommodation in Workshops.		Other Sanitary Defects in Workshops.			Other Defects in Factories and Workshops. Fire Escapes, &c.	Total.
	No separate Sanitary Accommodation for Women.	Insufficient, Insanitary, or Unsuitable Accommodation.	No separate Sanitary Accommodation for Women.	Insufficient, Insanitary, or Unsuitable Accommodation.	Overcrowding.	Want of Cleanliness.	Want of Ventilation.		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Scotland	—	16	13	5	—	5	2	4	45
Ireland	1	1	4	—	—	1	—	—	7
England and Wales	19	54	7	16	9	14	3	2	123
London and Suburbs:—									
*Acton	—	2	—	4	—	2	—	2	10
Camberwell ...	—	—	1	—	—	1	—	—	2
City	2	3	6	4	3	9	2	1	30
*Chelsea	1	2	1	2	2	4	2	1	15
*Chiswick	—	—	—	1	1	1	—	1	4
Deptford	—	—	—	1	—	1	—	1	3
*Fulham	2	3	1	4	—	22	10	10	52
Greenwich ...	—	—	—	—	—	1	1	2	4
Hackney	—	—	—	1	2	—	—	—	3
*Hammersmith ...	—	7	1	5	1	7	3	5	29
Hampstead ...	—	—	—	—	1	—	—	—	1
Islington	—	1	—	1	—	1	—	—	3
*Kensington ...	—	—	—	—	—	2	—	—	2
Lambeth	—	—	—	1	—	—	—	—	1
*Marylebone ...	—	—	4	6	17	26	20	26	99
Newington ...	—	—	—	4	—	—	—	1	2
*Paddington ...	—	—	1	5	7	9	6	4	32
*Westminster ...	—	—	4	16	8	13	8	9	58
Total	25	87	43	72	51	117	57	67	525

Two Authorities may be singled out for special comment, Kensington and Marylebone. In almost all Boroughs the fullest and readiest co-operation was given but in these two, particularly, much help has been given by the Medical Officers, and most effective work was done by joint visits with the Lady Sanitary Inspectors in cases where the jurisdiction of local and central Authority appears to be closely interwoven. For example, *Miss Deane* visited in Kensington, with *Miss de Chaumont*, a number of workshop laundries, and Marylebone, with *Miss O'Kell*, a number of dressmakers and milliners, where the question of temperature arises in the closest connection with ventilation. The long time during which women's workshops in Kensington have been under closely applied inspection is well known. It is seldom necessary there to send formal notice of a defect. *Miss Deane* comments on the fact that, in no area can she find so many healthful workrooms, and so high a standard applied. In the case of only two Authorities has it been necessary for me in any way to intervene on account of their slowness to yield the desired co-operation. In both, I think, we may hope for great advance in the coming year.

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The following table furnished at my request by *Miss Deane*, shews the number of workplaces notified to her by the Local Authorities in three sanitary areas, under section 3 (3) of 1891.

THREE LOCAL AUTHORITIES WHO ALONE HAVE NOTIFIED NEW WORKSHOPS IN 1901.

Kensington	265 workshops.
Marylebone	404 „
Hammersmith	22 „

It is clear that more will be due from other Authorities in 1901, and that they have not so far fulfilled their obligations in this respect. Their attention has been invited to the matter.

At first the pressing burden of reducing the general clerical work of the new office to a system made it almost impossible to act on these notices, comparatively small in number though they were, as they came in. It was for accumulations in such cases that I found it necessary to divert the services, temporarily, of one or more of the usually itinerant Inspectors. Now these notices are placed by *Miss Deane* in the same category with complaints and accident notices, and are steadily and directly followed by a visit of general inspection and instruction before the official Abstracts are sent.

This method will, I hope, in a few years (when all the Local Authorities are steadily sending in reports as they should) render it impossible for us to find modern workshops running for months, or longer, entirely contrary to the law.

Miss Paterson's table of cases referred to Local Authorities is included in the general table C, but I think it of interest to reproduce her table so far as it relates to Scotland only. In addition to the 45 notices in Scotland she sent 24 in England, chiefly in Lancashire.

Defects notified to Sanitary Authorities during 1900.

Places.	Defective Sanitary Accommodation in Factories.		Defective Sanitary Accommodation in Workshops.		Other Sanitary Defects in Workshops.				Totals.
	No separate Sanitary Accommodation for Women. (1)	Insufficient Sanitary Accommodation for Women. (2)	No separate Sanitary Accommodation for Women. (3)	Insufficient Sanitary Accommodation for Women. (4)	Overcrowding. (5)	Want of Cleanliness. (6)	Want of Ventilation. (7)	Other. (8)	
SCOTLAND :—									
Dunfermline ...	—	7	—	—	—	—	—	—	7
Fraserburgh ...	—	—	6	—	—	2	—	—	8
Galashiels ...	—	—	1	—	—	—	1	1	3
Glasgow	—	5	1	1	—	1	1	1	10
Harwick	—	4	—	—	—	—	—	—	4
Innerleithen ...	—	—	—	1	—	—	—	—	1
Peterhead ...	—	—	5	3	—	2	—	2	12
Totals	—	16	13	5	—	5	2	4	45

(b) Separate, suitable and sufficient sanitary accommodation.

The recent decision of the High Court in the case of Tracey *v.* Pretty (begun in 1899 in Ipswich, only concluded in the current year) clearly defines for the first time what is meant by the "proceedings" open to H.M. Inspectors when it is necessary to act in default of a Local Authority in England or Wales, outside London, but only

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indirectly, if at all, does anything to settle divergent opinion among authorities as to standards of sufficiency in provision for sanitary conveniences in factories and workshops. It does nothing to remedy our powerlessness to improve improper arrangements, or to enable us to secure protection for the modesty of young workers, and the reports of the Women Inspectors have so long and so fully illustrated the need of making such provision as is found in other European codes that I need not further press it here. It is of interest to note that the decision above referred to does not touch the case of London under its own Public Health Act. Here, if a divergence should ever appear between central and Local Authority, a different procedure might arise, but the practical significance of the difference is less when one reflects how many were the London Local Authorities who were shewn in the case of Tracey *v.* Pretty to have as high as or higher a minimum standard than the Home Office.

Miss Paterson reports further as follows, on the standard of sufficiency and suitability :—

> My experience during the year has deepened the conviction that there is urgent need for the adoption of a uniform standard of sufficiency of sanitary accommodation, or at least of a legal minimum. This is not a question to be judged of on its merits at each factory on the visit of an official, and as the standard approved by the Home Office is the one adopted by many authorities, all that would be necessary would be the levelling up of the remainder. In the important manufacturing town of Dunfermline, I found in some of the most important damask linen factories a very insufficient provision, in one case one convenience was provided for every 100 persons, in another one for every 90, in none was there one for every 40. I was informed that the Sanitary Authority had not adopted any standard, and on my pointing out that a uniform standard was desirable, one was adopted of one convenience for 50 persons.
>
> Similarly, in Hawick, the town clerk informed me that no standard existed, as had been evident to me when I found in an important hosiery factory one convenience for 130 women, and several cases of one for over 40 women. The duties laid on Local Authorities by the Act sit lightly in some instances, and I am still without any information as to the action taken in these cases.
>
> With reference to the question of suitability, I find there is nothing to be hoped for at present from Local Authority, so far as suitability implies regard for decency. The question of a suitable site is considered only from the point of view of possible nuisance resulting, and I have not found that any Local Authority takes into account position of sanitary accommodation with reference to the factory itself, to the employment of men, or the provision of accommodation for men near it, or issues any order that the internal structure of such accommodation must conform to any regulations. Consequently, one finds new accommodation which has all the objections which one found in the old, and an increase in the number of unsuitable conveniences is not a great boon to a factory. Where accommodation has been erected with a due regard to everything but propriety, and has been in existence for some time, and reconstruction would be necessary to secure that propriety, little can be done, but the deliberate construction of new accommodation with all the faults of the old, ought not now to be possible without the owner being at least made aware of the objections to it; yet very recently in the neighbourhood of Glasgow, having notified to the Local Authority the existence of insanitary and unsuitable accommodation at a large factory, I found on a subsequent visit this replaced by a structure quite as bad sanitarily and, one might almost say, insulting to the respectable girls employed.
>
> In many cases where I have informed Local Authorities of the details of the improvement which I think should be made, my suggestions are put before employers; in some cases my letters are read to them. My own experience, however, is that simple suggestions are more frequently acted upon when they come from me directly and not through the medium of a Local Authority.
>
> The Act of 1895 fixed one month as the period within which information should be sent by the Local Authority of results. The wording of the section: "it shall be the duty of the Sanitary Authority to inform the Inspector of the proceedings taken in consequence of the notice," suggests that definite information is to be given—as a matter of fact that rarely occurs.
>
> With the exception of one or two authorities who carry out the section in a way that leaves little to be desired, none give me the information until I have written for it, and then frequently only in a very unsatisfactory manner, forgetting or ignoring the fact that H.M. Inspector's responsibility does not end with the sending of a notice to another Authority.
>
> I may quote some examples: one, for instance, in which the town clerk sent me a copy of a minute of his council showing that at a meeting the "medical officer stated that he had satisfied the Inspector that everything that was possible was being done." Fully appreciating as I do the importance of co-operation as much as possible with Local Authorities, I hesitate very much to insist on details, but it is quite impossible to dismiss the sanitary defects of a factory entirely from one's mind because the "comfortable assurance" that "the matter is receiving attention" has been furnished.

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Miss Paterson suggests that the simplest, as well as the most satisfactory method of conveying the necessary information would be by means of a copy of the notice given by the Local Authority, and I think some steps may be taken, by conference with clerks to the Sanitary Authority or otherwise, to secure this amount of co-operation.

It is, of course, necessary to allow reasonable time to make structural alterations and additions, especially where questions of drainage are involved, but one can hardly see any reason for such delay as occurs, for instance, in adding to already existing accommodation. At the close of 1898 I notified a case of defective accommodation for women at a rubber factory, having found it to consist of one dry closet containing six pails, unseparated by partitions, unprovided with doors, or with any artificial light, unpaved, and with the ground in front of the seats in a very wet and muddy condition, owing to the one window being broken. The whole interior showed no signs of having at any time been limewashed, and was very filthy. The reply of the Local Authority stated that there was no sewer reasonably near the factory, and continued :—"It would be necessary to request the firm to fit up in certain sites within the works adequate and suitable accommodation on the pail system, with an average of 25 workers to one closet. I have issued instructions on these lines."

It was surprising, on revisiting more than a year after, to find the accommodation which I had notified exactly as it was, neither cleaner nor more suitable and sanitary. An enquiry sent to the Local Authority elicited the information that their original notice issued had reference only to the men's accommodation, regarding which no notice at all had been sent by me.

I have received the following report from *Miss Tracey* :—

This is a matter in which certainly an improvement can be recorded. In many outlying places, however, the standard is still deplorably low until the matter is pointed out.

The Local Authorities almost invariably met me in a spirit of co-operation. The want of thought which still places the sanitary conveniences for men and women next door to each other is still to be deprecated, but one hopes that the question of suitability may have some consideration now that the matter of separation is established.

The question of accessibility of the sanitary accommodation is one that, in my opinion, is not sufficiently considered. In two instances quite lately I was begged to see if anything could be done for workers in workrooms connected with shops. In each case access could only be gained by going through the shop—and those who are versed in the ways of shops will realise how a great barrier existed under the circumstances. In neither case could I do anything, for "sufficient and suitable" accommodation had been provided under the ægis of the Local Authority. The demand for a legal definite standard (of the number of persons allowed to one convenience) appears to me very great. The successful issue of the Appeal against the Ipswich Magistrates' decision does not affect this point.

The present system of allowing workers to use the "private" sanitary convenience belonging to the owner of the house is a fruitful source of difficulty, and I think every workshop and factory should be obliged to provide sanitary conveniences, apart from private requirements altogether. On the other side I wish it could be impressed on employees that many employers, who have the welfare of their workpeople warmly at heart, are greatly discouraged in their efforts by the disregard shown for the property of the owners. I have been told over and over again, and have reason to know that it is true, that the careless treatment of good fittings have resulted in broken basins, choked drains, and many other evils. The danger of this bad treatment lies in the general lowering of the standard of accommodation on future occasions, a natural result which is greatly to be deprecated.

The generally bad standard of accommodation for tailors' workshops, in which women are employed, is very noticeable. The workrooms provided for dressmakers in the same firm are often excellent, but any loft or shed almost appears thought good enough for tailoring. The want of cleanliness, and the absence of proper heating arrangements, have engaged my attention a great deal. The sanitary arrangements are almost invariably, in my view, unsuitable. "Separate" accommodation is usually provided, but in placing the conveniences door to door, as is so often the case, suitability has entirely been lost sight of. Such a repugnant arrangement greatly troubles the modesty of many of the women, and adds another danger to the lives of many young girls, whose path already is one of difficulty.

It is hoped that in all new buildings the Local Authority will give this matter their attention.

The moral dangers threatening young girls employed in tailoring workshops in company with men all day are well known in the trade, and have often been commented on to me by employers who themselves prevent the custom in their own workshops, and who with myself greatly deplore the custom.

In many parts of the country young girls and women, men and boys, sit together on the floor or platform, in close proximity. Sometimes they work in pairs on the same garment, sometimes the work is done independently. I earnestly hope that this custom, which is a real danger to the future of many young workers, may soon die out.

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With reference to the absence of separate accommodation in the way of sanitary conveniences for women clerks and typewriters in London offices, of which *Miss Vines* received and forwarded complaints referred to in the Annual Report of last year, I have received from her a note that :—

> The complaint on this subject has at length been dealt with, and separate sanitary accommodation provided for the women clerks employed.
>
> It will be remembered that last year I expressed myself doubtful as to whether section 38 of the Public Health (London) Act, 1891, which provides that every factory, workshop and workplace . . . . shall be provided with sufficient and suitable accommodation in the way of sanitary conveniences, . . . and also where persons of both sexes are . . . employed . . . with a proper separate accommodation for persons of each sex, would apply to a clerk's office. It seemed to me unlikely that an office would be defined as a workplace within the meaning of the Act.

This opinion, we recently learn, must be modified in view of the decision given by the High Court in the case of Bennett *v.* Harding, which makes clear the meaning of the expressions "workplace" and "in attendance" used in section 38 of the Public Health (London) Act, 1891. The remarks of Channel, *J.*, are of special interest :—

> The first question we have to consider is whether this stable-yard is a workplace. Even assuming that the doctrine of *ejusdem generis* applies—and I am not sure that it does apply—but assuming that it does apply, it does not seem to me to mean a similarity with a factory or workshop in the work that is done there, but the meaning is that it must be a similarity having reference to the objects of the Act of Parliament, a similarity in keeping persons employed there for any considerable length of time ; a similarity, in fact, in so far as the matters are concerned which go to make up the objects of this enactment, but not a similarity as to the work done in a workshop or factory. A workplace must be a place where work is done permanently, and where people assemble together to do work permanently of some kind or other ; though I do not say that the mere presence of workmen in repairing a private house would make it a workplace. That being so, these stables are, I think, a workplace within the meaning of the Act.

(c) Temperature in workrooms.

A long and severe campaign has been carried on by *Miss Deane* and those working with her against excessively low temperatures in the winter months of 1900 to 1901, in west end workrooms. Much anxiety and difficulty practically arose through the uncertainty whether the existing legal provision could be applied so as to secure means that are *wholesome* as well as adequate to merely raise the temperature to the desired degree on the thermometer. The complaints in 1900, as in previous years, have been numerous and well founded of use of gas jets in unventilated rooms, with every natural aperture closed, in order to avoid the suffering of a low temperature. At length it was decided by the Home Office that a test case should be taken and a clear issue was found in the case of Deane *v.* Hulbert Beach, heard in the current year, in the Westminster Police Court. As the magistrate's decision was against the view necessary to enforce, if at all, by the existing law, provision of means not injurious to the workers, an appeal is pending at our instance. A full report of the whole circumstances leading up to the prosecution may therefore be postponed until next year.

Miss Sadler sends me the following general observations on low temperatures in West End workrooms :—

> It is curious to note how very often occupiers fail to comply with the provisions under the Acts for maintaining a reasonable temperature, which is sometimes excessively low in their workrooms. Especially is this the case throughout the West End of London, and the point is one of great importance where, as in this district, the height of rents prevents workers in the large dressmaking establishments from living near their places of employment. To take the case of a worker who lives, or rather, sleeps (for 12 hours of her day may have to be given to her work, and the journey to and fro), at Battersea, the dormitory of West End employés. She may have to reach her work in Oxford Street by 8 a.m. on a cold winter's morning. The distance from point to point may be three miles or so, and wet or fine, for she cannot always afford outlay in 'bus or tram fares ; this has to be tramped, and, if wet, she may reach her destination soaked through. If the occupier is of average thoughtfulness, a small cupboard-room is set aside for the reception of hats, jackets, &c. ; but too often no fire or stove is provided, so that the clothes must dry as best they can. The worker then begins her day's work, which, being of a sedentary character, and involving comparatively little muscular activity if she be a "sleeve" or a "bodice hand," means that she may suffer terribly from the cold of a room in which lighted gas jets have to supply both warmth and light. It is probably only after two or three hours, when the room has become heated by every aperture for ventilation being carefully closed, and the warmth given out by the expired breaths of the occupants, and the gas, that the temperature becomes to any degree normal. The stuffiness of such a room at the end of the day amply demonstrates how far below the normal standard of purity the air must be, and what cause there is for the headache and depression so often complained of by the workers.

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It is difficult, however, to convince an occupier of the danger to health of the above conditions. Keen as they may be in their business, artists perhaps in the designing of novelties, too many of the practical details of a workroom, and all that adds to the comfort of those employed, is given into the hands of the manager or "secretary," who, in the hope of being eventually taken into partnership, does not care to suggest extra expense. The twentieth century "Court" dressmaker is a problem yet to be studied. She is in many cases an anomaly. She has gone through no term of apprenticeship, nor has she had opportunities of falling into line with fellow workers. More often than not she has drifted into business life from other strata of society. A ready return is required for invested capital, and this is difficult in days of keen competition. It is therefore perhaps difficult for them to understand that more attention to these minor points would increase their output, and enable them to take advantage of more skilled work than has hitherto been the case.

(d) Ventilation.

The hope of the introduction in the near future into our factory code of some regulation for provision and maintenance of sufficient means of ordinary ventilation in workshops and factories (a matter which, as I have shown in previous reports, has engaged the attention of other chief industrial countries before our own) renders it less necessary than in previous years to enlarge on this subject. It is one that from the beginning has specially attracted the attention and study of the women inspectors. Possibly this is partly attributable to the fact that women and girls are constitutionally even more liable than men to some of the injurious effects of breathing impure or insufficient air (and certainly suffer more frequently and severely from anæmia and faintness), partly to the fact that women are mainly employed in the sedentary occupations carried on in closed-in workrooms. The accumulated evidence growing steadily in completeness ever since Sir John Simon laid down with convincing illustrations and figures in the middle of last century that ill-adapted attempts at general ventilation, together with "non-ventilation," had been up to the time he wrote, through absence of legislative control, the most potent single cause of injury to health of indoor manual workers, shows the reform to be as inevitable as it is desirable. (1)

Apart from the special needs of women and girls our experience has amply illustrated for us the need in most sedentary occupations, and in all where delicate materials are dealt with, for regarding windows primarily as introducers of daylight, not as ventilators. It is amply illustrated in West London workrooms how difficult it is to obtain adequate means of ordinary renewal of air where there is no generation by the work of gas, dust or other impurities.

In the Annual Report for 1897, page 100, I quoted from one of *Miss Squire's* reports of an English country factory in which white work was done:—

> Occupied by over 100 women and girls, each having 250 cubic feet of space . . . . seated elbow to elbow in double rows facing one another at tables 2½ feet wide, all windows closed to exclude dust and dirt from the white garments being made. . . . . Surely the impurities that would be found were the air of this room tested would justify means being enforced for their removal equally with any dust or impurity generated by a manufacturing process."

As I pointed out to you again in a recent special report on the need of legislative remedy for such cases, this visit undertaken on complaint produced effect only in so far as the law extended. In 1900 fresh complaints compelled me to send an inspector, and *Miss Squire* being absent *Miss Tracey* has spent much time in the factory, which has grown, and in which some inadequate attempts at ventilation have been made. Evidence has been taken from local medical men, including the Certifying Surgeon, and the co-operation of the Medical Officer of Health has been secured. The Certifying Surgeon considers this factory to be a main origin of the phthisis found among women and girls in this neighbourhood. Several employed there have died in the last few years of this disease (one in September, 1900), anæmia being a preceding ailment. The undermining of health and the mortality in such a factory is at least as extensive as in many workplaces under special rules, even potteries seldom show greater injury, and yet in this case it is not the work but the mere absence of ventilation which does the injury.

In the following notes sent me for this report *Miss Tracey* refers to the case just touched on:—

> The efficient ventilation of factories as well as workshops is one that has given me much anxious thought.
>
> This is specially the case in factories where no dust or vapour is generated in the process in which the workers are engaged. It is the exhalations from the workers' own bodies and the impurities of the human breath that form the danger in many of these cases, in addition to gas

(1) Fourth Report of the Medical Officer to the Privy Council, 1861.

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fumes and the "stuffiness" of the cloth used, and for such there is no legal remedy at present Very often a factory is filled to its fullest legal capacity, the workers sitting so close to each other that they cannot fail to inhale each other's breath. The extreme danger of phthisis in a case of this sort was deplored to me by the Medical Officer of Health, but there was no legal power to insist on the erection of a fan, which would have been the only efficient way of extracting the impure air. Everything short of a fan had been provided in the way of ventilation, but the stuffy unwholesome air showed how insufficient such means are when large numbers are being dealt with.

In workshops, too, where large numbers are employed, and where no power is used, the atmosphere is often simply horrible. Add to this gas in the evening and one can conceive nothing more unhealthy. In these cases, too, all other means of ventilation are often employed with results that prove how unreliable they are.

Perhaps in future legislation the extremely beneficial section dealing with cubic space will be further improved by a proviso setting a limit on available height, and also providing that account shall be taken of furniture. For instance, a floor measured when quite empty to accommodate 100 is really of a much less cubic capacity when all the tables and machines are put in to provide for these 100 workers, but nothing to this effect is mentioned in the section, and often factories as well as workrooms are really overcrowded.

Miss Paterson has reported in 1900 on a shirt factory in Glasgow where the workers were seated closely together under "skylights, windows only very rarely opened, as in addition to down-draught the fall of the soot and dust made it inadvisable. There was no section of the Factory Act requiring ventilation for such a case as this, although it was easy to see that the health of the workers was not good." Again, she reported on a factory in Glasgow with "windows on both sides of a long room, the girls on benches so near these windows that there was not space to pass between the workers and the windows." Even on a fairly warm still day there would have been some risk to the worker in sitting for hours with her back to an open window, and the more gradual injury from sitting in an impure air is still permitted.

(e) *Underground workrooms.*

Underground workrooms have again in 1900, as in previous years, given occasion for much thought, as much from the injury due to use of artificial light as from the natural airlessness of such places. The most striking instance that has yet come to my knowledge was found on a complaint in the year on which I report. A narrow low underground cellar is packed with textile machinery in the end furthest from the narrow window slits at the street level; at the street end of the cellar some air can occasionally be blown in with dust and dirt from the roads and pavements, but just here is placed the gas engine. In the back part, where pallid women stand at the machines, gas is always burning. Here again we are powerless to order means for introduction of tolerable air. When legislative requirement of sufficient ventilation is established, the exhaustive enquiry of the Ventilation Committee to whom I have referred all such striking cases will, doubtless, provide us with the necessary advice and suggestion as to the proper kind of remedy to apply, so far as ventilation can remedy the matter.

Miss Vines sends me the following notes on underground workrooms:—

Employment in underground workrooms, except in the case of bakehouses, shows no likelihood of decreasing. Indeed, the evil seems to be a growing rather than a diminishing one. And for this reason: in years gone by the cellar of a building was rather *adapted* to meet the employer's ideas of the requirements of a workroom; now it is specially *designed* for that purpose. Only the other day I was in a basement workroom, above which was a beautiful shop, in one of the most fashionable streets of West London. Certainly it was the best of its kind, and an improvement on the old-fashioned cellar. The employer pointed with pride to the electric light and parqué floor, and drew my attention to the point that such advantages were due to the fact that, as the premises had only been erected five years, the basement had been specially designed as a workroom! My suggestion that a room above street level would be preferable was not denied, but I was met with the incontrovertible arguments of the builder that ground was dear, that the basement could not be wasted, and that as it was unsuitable for shop or flat, it must, of course, be used as a workshop!

Meanwhile, it would seem that if some of the provisions of the Public Health Act, 1875, and of the Public Health (London) Act, 1891, with regard to underground and cellar dwellings, were extended to workshops, much good might result. The Public Health Act, 1875, absolutely prohibits the occupation of any cellar built or rebuilt since 1875 as a dwelling, and both this Act and the Public Health (London) Act, 1891, lay down most stringent regulations with regard to the occupation of cellars built before certain dates. Section 96 of the Public Health (London) Act, 1891, requires, among other matters, that at least three feet of the height of the room should be above street level, that an open area of a given space should be outside the room, and that the window space should be of a given area. Anyone acquainted with the conditions of underground workrooms will agree that these provisions might advantageously be extended to workshops. That the workers and their friends are fully alive to the danger of such conditions is shown by the following extract from a letter lately received:—"Women are employed in an underground basement, where there is neither daylight, windows,

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or fresh air, and I personally know of some who have left from illness caused by this very unhealthy room." Such workrooms, ventilated chiefly by small fanlights, reaching from the floor of the shop window to the street level, and by the removal of small lights from the thick glass inserted in the pavement above, having been alluded to in former reports, need no further description. But to sum up, I would say that although basement workrooms are capable of, and in some cases have undergone improvement, still my experience is, that owing to the basement position itself, improvements are so handicapped that there would seem no real remedy except in the eventual extension of sub-section 3 of section 27 of the Factory and Workshops Act, 1895, to all workshops. Every room underground used as a workshop would then eventually become a contravention of the law.

(f) Ancient lights.

Miss Vines sends the following notes on workshops and the law relating to ancient lights :—

Inspecting an ironing-room of a laundry one hot summer's day this year, I was annoyed to find one of the best windows blocked by a large board outside, erected by the owner of premises near, who intended building. This not only prevented the ingress of light and fresh air, but also stopped the egress of the hot stuffy air from within. As the proprietor of the laundry had only owned the premises about 21 years, and the board had been put up five years before the date of my inspection, I had, of course, no power to object. For "as the continual enjoyment of the light for 20 years invests the owner of the house with a right to prevent his neighbour building, it follows that the only preventive remedy open to the neighbour, is to erect a building or a screen to obstruct the light before the right is acquired against him."

The law on the matter is found in the Prescriptive Act (2 and 3 George IV., c. 71). This provides (section 3) :—"That when the access and use of light to and for any dwelling-house, workshop or other building, shall have actually been enjoyed therewith for the full period of twenty years without interruption, the right thereto shall be deemed absolute and indefeasible."

Very naturally when effect was first given to the statute it was most unpopular. Owners of property in the City of London found it very inconvenient, the inconvenience consisting in the fact that they were no longer at liberty to oppress their neighbours by diminishing their scanty supply of light and air, and no longer had the power to crowd hosts of clerks, warehousemen and workmen, into huge gas-lighted, unventilated warehouses and factories. The "inconvenience" has undoubtedly been "an enormous gain" to the workers in the London factories and workshops of the nineteenth century. And although, as the above illustration shows, there is still room for reform in the law of ancient lights, it is in great measure owing to the Prescriptive Act that so many of our factories and workshops are as well ventilated and as well lighted as at the present day.

5. Unhealthy and dangerous occupations.

(a) Summary of work.

Two or three of the industries scheduled as dangerous or injurious, and under Special Rules, as well as others injurious to the health of workers, needing further regulation, engaged much of the attention of this branch in 1900. I spent some weeks in the early part of the year with *Miss Deane* visiting potteries in Staffordshire, enquiring into complaints received, and observing and taking action upon the manifold infringements of Special Rules there. Later in the year I visited with *Miss Tracey* a few earthenware and china works in Hampshire, Somersetshire and Worcestershire, and noted, on the whole, a higher standard than in Staffordshire of conformity to the rules. In the autumn and winter I visited various kinds of metal enamelling works, where use of lead makes the industries dangerous to health and life as in the Potteries. *Miss Paterson* visited, and sent me notes on observance of the revised Special Rules in lucifer match works. *Miss Squire* took action to enforce observance of limitations of employment for young girls in brick-glazing, and for observance of Special Rules in aërated water works. She also made considerable study of conditions injurious to health in tin plate works, and in various manufacturing processes.

(b) Earthenware and china works.

The large number of applications for investigation in Potteries, by a woman inspector, of conditions injurious to the health of women and girls in earthenware and china works, led me to make some personal study of the conditions, particularly in Staffordshire. So many and grave were the irregularities and infringements of Special Rules (which had then been in force for nearly two years), that my only course was to take into court the worst and most typical cases as a warning. I laid informations against some of the principal employers in Burslem, Stoke and Longton, for failure to supply proper washing appliances, failure to cleanse weekly the boards used in the dipping house, failure to provide suitable overalls and head coverings, re-employment in a dangerous occupation of a worker ill and suspended, without a medical certificate of fitness for such employment, and neglect of the provisions for periodical medical examination. In all but one instance convictions and considerable penalties followed. In the case dismissed the Stipendiary found, as a fact, that the provision of washing appliances was in conformity

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with the Arbitration Rules, which, in the view of the Home Office, did not legally apply to the factory in question. The policy of testing this legal point by appeal to the High Court was considered and abandoned. The probable revision in the near future, and amalgamation of the two sets of rules, and the revision of the whole procedure, made the legal question in itself of minor consequence, and it was felt that in the particular case in question, more could be, practically, obtained by another method. This method was by written notice to require the occupiers to provide such washing accommodation as would conform to the standard which the Home Office had intended by the rules to apply. It was made plain that proceedings would be commenced again on the clearest obtainable evidence if the standard were not adopted. Excellent provision was at once made in the factory, and the policy thereby shewn to be most satisfactory in the interest of the workers as of the administration.

Further visits in the Potteries district, a month or two later, showed a greatly increased readiness in employers to give careful attention to my instructions on the irregularities found. It was with very great regret that I was compelled, by the pressure of many other responsibilities, to abandon the project I had of spending more time in the Potteries in the autumn, and the small numbers of this branch made it impossible to spare, for the time being, for a sufficient stay there, either of the Inspectors, who had already done so much there, and were best qualified for the work. I saw enough, especially of the china scouring processes, to estimate still more highly than before the thoroughness and soundness of the methods by which *Miss Paterson* and *Miss Deane* had conducted their enquiries into mortality and injury to women and girls employed, and to realise the need for extension of that enquiry.

Miss Deane sends me the following notes on our joint visit in 1900 :—

> In accordance with your instructions I accompanied you to the Potteries districts in Staffordshire, to assist in the visits and enquiries upon which you were engaged in the early part of the year. Two facts were clearly demonstrated by these investigations.
>
> (1.) The futility and confusion resulting from two sets of Special Rules in one trade, and the inevitable fall of the standard to the lower level, so that even firms who had accepted and were legally under the slightly higher standard, were by the Court of Summary Jurisdiction relieved of the necessity of complying with other than the lower standard.
>
> (2.) The need for greater care in the medical examination of women, and especially of young persons, in dangerous processes, many of whom, examined under very unsuitable conditions, naturally shrank from and endeavoured to escape, an ordeal to which they need never be subjected. This we found led not infrequently to failure in detecting the very evils which it is the object of the examination to find out and eliminate.

Miss Deane here touches on the immense difficulty, on which I fully reported to you, of securing that the compulsory medical examination of women and girls, in a factory or its office, should be conducted on such lines as not to offend the refined feelings of the better sort of them. I found the arrangements to be very far from what the women had a right to expect in too many cases. I was not in the least surprised to find that symptoms of plumbism were admitted readily to me in their own homes, which the women and girls will only very reluctantly report, even when questioned, to the Certifying Surgeon at the factory office, sometimes, though this I trust is now checked, in the presence of other men. There is a strong tendency, especially among the younger girls, to leave the factory when they feel ill without suspension by the Certifying Surgeon, and to rely on treatment at home. What I believe to be necessary, if any conception is to be obtained of the extent of the injury to health going on that ought to be controlled, is that all such cases should be tracked out from the factories, as we did in a few instances. I consider that these workers have a claim of the strongest kind to all the protection in administration of the rules that can be secured to them by constant investigation of a qualified woman. We found pressing need in many of the potteries for separate provisions of cloak-room, mess-room, and lavatory for women and girls. The better sort of them strongly and rightly object to crowding into these narrow places with men and boys. Glost placers, men and boys, form a large proportion of the workers, and as their occupation is a hot and dusty one I was not surprised to receive complaint, on the spot, from the women that they could not use the same conveniences. Complaint was also several times made of the mess-room accommodation, which is frequently one with the cloak-room and lavatory. As regards dust, I found the most dangerous conditions in dipping-house, dippers' drying room and ware cleaning rooms, as well as in the fine china scouring. I referred a number of such cases to the Engineering Adviser and the Ventilation

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Committee. The question of washing the overalls and head-coverings has been in a very unsatisfactory state, and must be so while Special Rules divide the responsibility between employers and workers. Sometimes a worker, being too busy to wash the overall herself, gives it out and pays 4*d.* a week (a heavy tax) to have that and the head-covering kept clean for her. Some employers make the arrangement for washing and charge the worker 3*d.*, others, more liberal, do it without charge. One of the best known firms leaves all responsibility for washing the towels also to workers. Incompleteness of the health registers we found very general. I prosecuted in one case where a girl of 15 had been five weeks in the dipping house without being entered in the health register or the general register, and who was without a certificate of fitness for employment even in a safe process. The stuffy, as well as dusty condition of the dipping house, brought home the need for ample ventilation *per se* in addition to extraction by mechanical means of dust or fumes in all unhealthy industries. In another pottery outside Staffordshire I found workers in a so-called "new dipping house" in an airless confined angle of the room behind the mangle, dipping, handing and taking-off ware. This I noted as dangerous to health, and later sent *Miss Squire* to enquire into the health of the girls working there. She found that there had been injury, and one girl previously well in another department and placed in this one after my visit in the winter, fell into an extremely anæmic condition, and was under treatment as an in-patient in hospital. In this place not only air but also sunlight was wanting. As Dr. Legge points out in a recent article in the "Journal of Hygiene," "Persons exposed to lead, with its anæmia producing effect, want sunlight and air, which structural conditions often allow to enter but sparingly."

(c) Metal enamelling works.

My attention was drawn in the Autumn of 1900 by Dr. Legge to certain conditions of employment of girls in copper-letter enamelling works, and I inspected various workshops and factories in London, Birmingham, and Eccles, in which the processes are carried on, finding, as Dr. Legge did, much to be done in the way of securing proper washing appliances, medical examination, extraction of dust, and other safeguards. In one of the factories more could be required than in others, owing to the fact that iron-plate enamelling, under Special Rules, was coincidentally carried on. Even these safeguards appeared, however, hardly adequate to the conditions, and it became necessary to extend the enquiry from point to point in the metal enamelling trades with special reference to the use of lead and arsenic in vitreous enamels. In addition to the above-named centres, I visited Wolverhampton, Manchester, Glasgow, Falkirk. Since, by your instructions an exhaustive enquiry, not yet complete, into the conditions necessary for health in these industries, with a view to thorough revision of the Special Rules, has been continued in the current year by Dr. Legge and myself, further details may stand over until the next Annual Report. I may refer to one curious and unfortunate defect in the existing Special Rules, which appeared when I found that work-girls without overalls or proper washing appliances were taking dinner at the powdering benches in an iron-plate enamelling works in which powder containing lead equal to 44·05 per cent. of lead oxide, and arsenic equal to 4·37 per cent. of arsenious acid, was used. The rules require of workers that they shall take meals only in the place set apart for that purpose. In this works a notice, signed by the Managing Director, instructed the girls to take meals in the powdering room, and there was no power either in the Act or the rules to bring home, legally, to this employer his moral responsibility for the lead poisoning, which resulted. I recommended and secured the appropriation of a safer place in the works for a mess-room. One of the unfortunate victims explained to me that she and her companions, took care to sweep the bench before they began to eat. In a copper-letter enamelling works there is no provision of any kind binding, even on workers, as to the place in which food may be stored or eaten. I found one girl drinking at her bench tea into which her companion at her elbow was freely sprinkling the poisonous powder.

(d) Lucifer match factories.

Miss Paterson sends the following note on lucifer match works :—

The close of the year has seen the enforcement, to some extent, of the new Special Rules for lucifer match works. It is too early to say anything of results yet, but the results of the examinations of workers' teeth, by the appointed dentist, has demonstrated very clearly the need there was for such examination. As was to be expected there has been some timidity on the part of workers, and reluctance to undergo the really serious operations necessary, in some cases, such as the removal of ten to fifteen teeth. Of course, as time goes on, operations of this nature will become less and less frequent, as occupiers will naturally choose workers with sound teeth, and the regular examination will enable the dentist to check decay. One good effect the enforcement of the rules seems likely to have is the improvement of processes, and possibly the substitution of a really safe match for those now made.

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From *Miss Squire* I have received the following interesting report on her investigation of the conditions of employment in tinplate works :— (e) *Tin plate works.*

My attention was called at the end of 1899 to the conditions of women's work in tinplate works, and carrying out your instructions I have investigated this matter at intervals during this year. The majority of tinplate works are in South Wales, a few are found in North Wales, Gloucestershire and Monmouthshire. Heavier, dirtier, or more unlikely work for women and girls can scarcely be imagined, yet hundreds are employed, a large number being quite young girls. Their work is carried on among the men and boys in these large open works, most of which are also iron mills. Provisions for women's convenience or comfort, even for decency and propriety is mostly conspicuous by its absence—that the character of female workers at tinplate works as a class has not suffered more is to their credit alone, the employers can take none of it to themselves.

Mr. Whymper in the Chief Inspector's Annual Report for 1888, so accurately and graphically described the works and the processes of tinplate manufacture that there is no need for me to do more than refer to his account, the passage of time which has wrought such charges elsewhere has apparently left the processes and the conditions of employment much where they were ; time has only left its mark on the buildings and the plant. The occupations of women and girls in tinplate works fall into five departments. First, the openers who working in the iron mills separate the iron plates which have by the process of rolling become welded together ; second, the washers who cleanse the plates in tanks of water ; third, the pickling girls who work under the pickler lading and unlading the cradle in which the iron plates are set in upright position before it is lowered into and raised again out of the steaming tanks of dilute sulphuric acid ; fourth, the tinhouse girls who finish the tinned plates by rubbing them with bran and mineral powder to remove all grease and to polish the surfaces ; fifth, the reckoners and packers who sort, count, and pack into boxes the completed shining plates. There are the main divisions of women's labour, others subsidiary to them are met with in some works. Very different as are some of the conditions in these five departments of labour, all have at least these points in common, exposure to the weather (the works being open), noise deafening in the mills where the openers work, but considerable everywhere, danger from moving locomotives and trucks, from red-hot metal or from sharp edged plates and waste, lifting and carrying of heavy loads. From handling the plates the hands are cut and scarred in every direction, the superficial cuts beyond being painful do not seem to trouble the women who carry material for bandaging as a matter of course for almost hourly need, but deep cuts of a more serious nature are not infrequent. I saw an opener who had had her arm cut open from wrist to elbow by an upright plate, and other severe injuries have been reported. The roughest and dirtiest and perhaps most unhealthy occupation is that of the pickling girls. The strength of the solution of sulphuric acid used for the "pickle" varies according to the variety of the plate manufactured. Consequently the degree of discomfort and injury to health varies in different works and at different times, but in all alike the peculiar smell of the acid pervades the works increasing as you near the Pickling Department where the huge tanks emit volumes of steam which only under very favourable circumstances of weather and structural arrangement rises and escapes usually hanging about the workers or blowing in clouds across the open shed making eyes and throat smart. Where a strong solution is used the workers suffer considerably from this smarting of lips and running of eyes, from what they described as a "stifled feeling," from nausea and giddiness, the teeth and sometimes the lips are blackened, the hair is said to fall out, but in ordinary cases very little complaint of injury to health is made, the workers believe that the pickle gives them an appetite and keeps off infectious illness. But whatever may be the effect of the pickle, all the women and girls employed in that department are agreed as to the discomfort and the risk to health arising from their wet condition, womens clothing seems specially inappropriate for such work as theirs, and some effectual means of protecting feet and body is much wanted—at present all I have been able to do is to suggest various expedients. In Switzerland by a decree of 1898, pregnant women are forbidden to work where there is any emanation of sulphuric acid, lifting heavy weights or violent shocks. All these conditions are found in women's labour in tinplate works. The only special provision at present applying to tinplate works here is the prohibition of meals being taken in departments where metal is dipped in acid solution—this excludes the women and young persons from the Pickling Department during meal times. Yet no other place having been provided, this regulation was practically ignored. A prosecution was taken to enforce its observance, and the conviction of one prominent firm was followed by the provision at their several works, and in some others of a room where meals could be taken in some degree of comfort, and a stove provided where food could be warmed and clothing dried.

The specially injurious features of the work of the tinhouse girls are the inhalation of dust, and the carrying of heavy loads. In the tinhouses quite young girls are employed in rubbing with bran, meal, or mineral powder the tinned plates hot from the tinning pots—their work is done on tables or on machines near the tinning stacks where the tin-man and his assistants are working and delivering to the girls a constant supply of newly tinned sheets. As the girls push the sheets backwards and forwards through the heaped up powder, much dust rises into the air and is inhaled by them. Some of this dust is peculiarly irritating, and all is dangerous to the lungs. Machines have in some works reduced the number of girls employed, but the amount of dust present in the air of the tinhouses where these are in use, is not less or scarcely less that where hand-rubbing is carried on. Representations have been made to occupiers which it is hoped will soon result in mechanical means being adopted in all tinhouses to remove the dust away from the worker at the point where it is generated.

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The carrying away to the warehouse by the girls of the plates they have rubbed—work which could be done by a boy with a hand-trolley—entails upon them a strain far too great for their strength, as the plates accumulate, they must be removed, and to save constant journeys to and fro, too many are carried at one time. (See also below (h) weights.)

The sanitary accommodation at most of the works visited was shocking, both from the point of view of health and decency—in some cases there was no provision whatever for the women and girls—but improvements are being carried out, and the Sanitary Authorities once roused, are exerting themselves to secure not only sanitary but separate, suitable, and sufficient conveniences for women in accordance with the law.

(f) Aërated water works.

Miss Squire also reports on accidents and application of Special Rules in aërated-water works :—

Large as is the number of accidents reported from aërated-water works, it does not represent the total number which occur in such factories, not even, it appears, the number of reportable accidents. An accident to be reportable must either cause loss of life, or such bodily injury as to prevent the injured person on any one of the three working days next after the accident being employed for five hours on his ordinary work. Many light jobs can be done in a factory by a maimed person with a bandaged hand or an arm in a sling, even if it be the right hand or arm, and in many factories the ability to do work of any kind, however different from the usual occupation, has been regarded for the purpose of non-reporting an accident to be the injured person's ordinary work. A very comprehensive view of the meaning of ordinary work is frequently taken in aërated-water works where it is commonly said that the employée is not engaged as a bottler, or sighter, or labeller, to act in any special capacity but as a labourer, and her work is not this or that, but to do as her foreman tells her. Such a case I brought before the magistrate who upheld the official view, and said that, inasmuch as the injured person's occupation was altered by her accident from that of an able-bodied worker, to light work suited to her maimed condition, the accident had prevented her doing her ordinary work, and was reportable.

But there are in aërated-water works a very large number of accidents from bursting bottles, which cause much pain and inconvenience, and which are not reportable, as they do not incapacitate the worker—the hands of bottlers, wirers, and sighters show cuts and scars in every direction, and this even when the prescribed guards are worn—the cuts then being on thumb and fingers which the gauntlet leaves bare. Some employers have provided bottlers with woollen gloves, not divided for the fingers, such as babies wear, and these are a great protection, but cannot be worn for all machines. A thoroughly satisfactory gauntlet has yet to be invented—the thick, knitted, worsted mitten most commonly in use, while undoubtedly useful, does not afford protection in all cases. I have seen such cut through by a piece of flying glass, and a deep wound inflicted on the wearer's arm. For "wirers" these knitted gauntlets are useless, unless provided with a leather palm, for the pliers which the wirers use soon rub a hole in the woollen palm, and the end of the pliers catch in the frayed edges, and impede the work—even leather soon wears through with the friction of the plier, and the gauntlet is then useless. I have always found wirers working with the gauntlet slipped down to the wrist, and up to the present have not succeeded in getting any covering worn for long. Very few wirers are employed now, patent stoppers being used for most aërated waters. There is great difficulty in getting gauntlets worn over the hand in labelling, the paste with which the girls smear the labels adheres to the palm of the gauntlet, which becomes messy and then stiff, and rapidity of movement is impeded.

Face-guards.—Where the masks supplied to the girls are of a size suitable for small heads, light and clean, very little opposition to wearing them is encountered, and after a little while the women and girls become quite accustomed to them. Where I find guards thrown aside or being quickly donned as I make my appearance, and am told the workers complain that the masks impedes the sight or prevents their getting on with their work, it has always been the case that the guards provided have been either large heavy fencing masks, men's size, quite unsuited for girls' small heads, or have had no proper means of fixing on the head, and therefore shake from side to side with every movement, or the wire has become rusty, and the mesh clogged with dirt and dust. On entering a large aërated water factory one day I found every girl with her face uncovered, but wearing a guard upon the crown of the head, as if it were a new kind of hat; no attempt was made on my appearance with the manager and foreman to pull the masks down over the face. The manager pointed to a notice which drew attention to the special rules, but he contended that the guards were "being worn," that the rules did not say where they were to be worn, and the occupier's obligation ended with supplying the guards. On examining these masks I found them to be of such a shape that they could not be worn over the face without flattening the nose, and were so old and dirty that no self-respecting woman would put her face into one, nor could she see if she did. The employers were instructed, and suitable face-guards provided. On a subsequent surprise visit every girl was wearing one in a proper manner, and no one complained of any inconvenience or discomfort. At the same factory no gauntlets were worn, and the firm claimed to have done its duty in providing them, and threw the blame on the workers, but I found that the "providing" meant that bundles of stiff and dirty leather gauntlets were suspended from the gas-brackets where they had apparently hung for a very long time; when a pair was freed from some of the thick dust, and a hand pressed into the hardened leather, no movement was possible. The provision of more suitable gauntlets and their distribution daily to the workers secured compliance to the Special Rules without any opposition from the workers.

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The polishing of the metal taps of syphons being neither "bottling, labelling or sighting" is not provided for by the special rules. Much difference of opinion exists among employers as to the danger of syphons bursting, but on the whole the evidence points to sufficient danger to render necessary the same protection for the workers as in the three processes named in the rules. Syphons are made of stouter glass than ordinary bottles, but they are filled under greater pressure, and the danger of explosion, even some time after they have been filled, was only recently demonstrated by an account which appeared in the newspapers of much damage caused by the sudden explosion of a soda water syphon in a dining-room.

The bottling of beer, and processes incidental to it, expose the workers to injury through the bottles bursting or breaking; here also the special rules do not, of course, apply, but the wearing of gauntlets is recognised by some employers and employees as a valuable protection and voluntarily adopted.

In my opinion more requires to be done in aërated water works to protect from the dangers of bursting bottles persons whose duty brings them now and again or keeps them constantly in the rooms where bottling is carried on. A foreman who had lost one eye explained to me that it was struck by a piece of glass from a bottle which had just been filled and while he was walking up the room, adding, "as you have just done." A washer in the same plight said her eye had been struck by a piece of a bursting bottle as she stood at her tank some distance from the bottling machine from which the filled bottle was being removed. Other washers I have known to be severely cut on the face and arms by the same means. The danger to any person in any part of the large bottling rooms is so well recognised in some works that no one is allowed to be in the room or enter it without wearing goggles or face-guard. A better plan would seem to be to so screen off the bottling machines—which generally in large works stand in one long row—that every person should be safe who comes into the room. The Dangerous Trades' Committee recommended that all machines for bottling should be so fenced that at no period of the operation of filling or corking should it be possible for a fragment of a bursting bottle to strike a labeller, wirer, or sighter—that is to say, these three classes of workpeople should carry on their occupation either quite away from the machines, or else in a situation screened off by wire-gauze from the bottles in any of their positions on the filling machines. This recommendation is incorporated in the special rules in a somewhat weaker form—the words are "so as to prevent as far as possible during the operation of filling or corking a fragment of a bursting bottle striking a labeller, wirer, sighter, or washer,"—the latter class of worker added to those named by the Committee. The chief danger seems to be, as far as my investigations have taught me, from the bottle bursting when the actual operation of filling and corking is complete and as the bottle is being removed from the machine by the bottler. It would be a useful experiment if one of the large firms would try a wire screen along the whole length of their rows of Riley bottling machines and on both sides; hinged openings could be made to allow the boxes to be set down and removed from the stool beside the worker.

(g) Precautions against wet.

The conditions in both classes of factories above touched on led *Miss Squire* naturally into further consideration of the protection of women from being wet. Her observations which follow, bring out well the need for further protection against constant standing during normal factory hours in wet and damp places, which is injurious to everyone, and for girls and women causes special injuries and is attended by special risks.

There is but one general provision in the Factory Acts which touches in any way the question of liquid refuse overflowing in manufacturing processes, namely, section 3 relating to cleanly state and freedom from effluvia from any nuisance, but this has been found to fail in bad cases, and does not touch the question of wet or dampness *per se*. True, the definition of "cleanliness" given by Dr. Simon in one of his reports as Medical Officer of Health to the City of London would cover nearly all we could desire, but it expresses after many years the ideal and not the actual interpretation of the word "cleanliness": "Such cleanliness I mean as consists in the perfect adaptation of drainage, water supply, scavenage and ventilation to the purposes they should respectively fulfil; such . . . as consists in carrying away by these means, inoffensively, all refuse materials of life—gaseous, solid or fluid from the person, the house, the factory, the thoroughfare, so soon as possible after their formation, and with as near an approach as their several natures allow to one continuous current of removal."

The risk to the health of women and young persons, incurred by a state of being constantly wet, has been recognised as a proper subject for legislation, and both by a section of the principal Act, and also by Special Rules, means for their protection from being wetted are prescribed. The statutory regulations are, however, restricted to one occupation only, that of "wet spinning." One would wish to see them extended to other factories, where the workers, although not engaged in wet spinning, need protection from "being wetted."

Section 37, Factory and Workshop Act, 1878, provides that "Unless sufficient means be employed and continued for protecting the workers from being wetted, a child, young person, or woman shall not be employed in any part of a factory in which wet spinning is carried on." The Special Rules require in wet spinning rooms, "where splasboards are not provided, waterproof overalls or aprons shall be provided by the occupier for all the workers, . . . floors shall be kept in sound condition so as to prevent retention or accumulation of water."

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These rules could be most usefully applied to other factories. Aërated water works and tinplate works, two very dissimilar classes of factories, have this point in common, that in both there are departments where women and girls are, in the natural course of their employment, "being wetted" all day long. These departments are those where women and girls stand at large tanks of water in which articles to be cleansed—in the one case bottles, returned empties, in the other tin plates—are immersed; the splashing up of the water from the tank, and the drippings from the articles as they are removed from the water causes the clothing of the workers to be saturated soon after work is commenced. "We are soppod through to the skin soon after we begin in the morning until we get home at night" is the description generally given by themselves. This condition entails discomfort at all times, and in winter much suffering from severe colds and chills, besides constant risk of even more serious mischief. Usually the only means of protection attempted is several old sacks tied on as an apron, but this affords only a slight and temporary protection. A good macintosh apron seems to be really effectual in keeping the wearer dry, and with a sack worn outside to save it from injury from constant friction it lasts a very considerable time. These macintosh aprons are supplied to the washers at a few factories by the employers, and are very much appreciated; they are too expensive for the women to provide them for themselves, but the wearers are able to pay to the employer week by week a small sum towards the price of the apron until the whole amount has been refunded. One would like to see these aprons provided gratis as a necessary part of the equipment of the factory.

Another means of protection which is only suitable where the washing tanks are supplied with automatic means of immersing and raising the articles to be cleansed is a flange or splash-board fitted to the edge of the tank. I have met with this only in a few factories among all those in which it might with advantage be adopted. Where the washing is done entirely by hand the women must stoop over the tanks, and therefore splash-boards are out of the question. Mechanical contrivances for lowering the bottles into the water and raising them again to the surface, and also for cleansing the inside by means of a revolving brush, are to be found in most of the large aërated water factories, and are a great advantage to the workers. I have not found any such apparatus in use in the washing departments in tin-plate works, although the weight of the plates and the difficulty in manipulating large sharp-edged sheets of metal makes the need for such assistance greater than in the other industry.

There is another class of workers in tin-plate works beside the tin-plate washers whose work exposes them to severe wetting. These workers are the pickling girls, who work in gangs under the "pickler," and fill and empty for him the cradle of iron plates which he lowers into and again raises from the tanks of dilute sulphuric acid. The lading and unlading of these cradles is heavy dirty work; the load of iron plates fresh from their bath pour down streams of the solution upon the clothing of the girls by whom they are lifted and carried away. These workers require protection from the wet as much as the washers for reasons of health, and in addition for reasons of economy, for their clothing is saturated, not with plain water, but with the solution of sulphuric acid, which quickly reduces to rags both upper and under garments, all of which are stained with it.

The feet of the workers in all three cases above referred to are exposed to wet to a degree that causes much complaint of discomfort and of cold. The employees in aërated water works are better off in this respect than those in tin-plate works, for in the former grids or boards to stand upon are provided, and in many of them clogs (at the wearer's cost) are supplied. In tin-plate works all such means of protection are absent, the floors are usually in a terrible condition, and as the workers are constantly moving to and fro standing boards or grids would not be of much use; in the pickling department leather, of either boots or clogs, is very rapidly destroyed by the acid, and one is inclined almost to think that bare feet would be preferable to the sodden mass which once was a boot or clog in which the pickling girl shuffles about.

Other industries in which the women inspectors have chiefly noted the ill effects of wet processes, injury to health, and accidents due to walking on slippery floors, are in fruit preserving works, pickle works, fish-curing works, bottle-washing works, tin-washing and lacquering, wet spinning and doubling rooms, laundries. Only in the case of the last two are there provisions in the Acts which tend to remedy the conditions, viz.: 22 (2) (*c*) of 1895, and 37 of 1878. Both these provisions are very good so far as they go, but each needs the other as complement, and both are needed for all industries in which wet processes are carried on.

Even in steam laundries many experiences show that the "free flowing off of water" required by the Act is not interpreted so as to prevent the water first flowing over the workers' feet; much oftener is it the case in fruit and pickle works and bottle-washing that drainage, if it exists at all, is not designed for the workers' protection.

In general, where floors are unsloped and undrained, the liquid matter always tends to gather in the depressions caused where workers are usually engaged at their work; cracks always follow, and matter lodging there cannot be deprived of its injurious influences by provision of latticed boards, or clogs for workers to stand in. So far as girls and women are concerned, and they are most extensively employed in wet processes, clogs

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in no way prevent the wetness rising in the skirts by capillary attraction towards the knees, the misery of which is enhanced on long and cold journeys home at the end of the day. For all workers alike clogs only increase the risks of falls and accidents due to carrying weights across the slimy floors.

In pickle factories and pulping sheds I have repeatedly seen the bungs taken out of the vats, and the refuse flowing past and over the workers standing on dilapidated floors, to find the drain at a distance. In these and bottle-washing works I have noticed girls soaked through at the waist through lack of waterproof covering when they were engaged at the tubs.

Just before Christmas, 1900, at a large jam factory in South London, I found little girls at work washing and lacquering tins standing in pools of worse than muddy water; the building was *new*, and there was no gulley in the room to convey the overflowings to the drain outside. In an adjoining room (built as a harness room and turned into a meat and poultry-cleaning room without alteration), I found pools of blood and refuse on the undrained, unswilled floor.

(h) *Lifting and carrying of heavy weights.*

Miss Squire adds weight to our contention of previous years that lifting and carrying of heavy weights by young workers is a matter that merits in England the attention it has received in France* :—

> The further experience I have gained in the matter has only strengthened the opinion I expressed in the Annual Report in 1897, that legislation is desirable to control the lifting and carrying of weights by children, young persons, and women in factories and workshops. As the effect of such legislation we should probably see a speedy increase in mechanical means of lifting and carrying in factories and workshops, such as hoists and cranes, trollies, endless bands, and other contrivances, now so conspicuous by their absence, in just the places where one might expect to find them. The introduction of such apparatus would not mean the displacing of women and girls, it would only increase their remunerative work, for most of those affected are piece workers, and the time now taken up by journeys to and fro, fetching and carrying their materials or work, would be occupied in manufacture, and increase both their own wages and the output of their departments.
>
> It is pitiable to see young growing girls employed as beast of burden staggering under loads that men hesitate to lift—yet in some trades this is an ordinary sight. The strong girls gradually becoming accustomed to their load increase the size of it in order to make fewer journeys, and to have more time for wage-earning, a standard of weight to be carried is thus set which all are expected to adopt, the weaker girls do not like to be left behind and compared unfavourably with their companions, so all attempt to do what should be prohibited to any growing girl, and is doing serious injury to some.
>
> In brick-making, in tinplate works, in iron hollow-ware, and in warehouses in hardware trades, not to mention other industries, I have found girls aged 13 to 17 carrying loads which weighed from 30 lbs. to 111 lbs. in the ordinary course of their employment. Many are the complaints of weariness and over-strain made to me by girls, and young women—some of them mothers—who are too poor or too unskilled to leave an employment which is making too great a demand upon their physical powers, and which in some instances has caused serious injury.
>
> I share the wish expressed by Mr. Knyvett in the Annual Report for 1898, that the Dangerous Trades Committee had recognised the, what he believes to be, improper physical strain undergone by the female workers in the heavier branches of the galvanizing trade.

The illegal employment of girls under 16 in brickworks has been dealt with, and, I hope, finally stopped, but without fresh legislation nothing can be done to prevent girls in hollowware works carrying piles of pails, &c., weighing upwards of 50 lbs. I have myself seen and had weighed on the spot such a load that a young girl had carried across a yard and up steep ladder steps without handrail. But this is less serious than the heavy burdens of damp clay carried by little thirteen year old boys and girls in Staffordshire potteries.

(j) *Vibration.*

Complaint of nervous suffering arising from excessive *vibration* in factories again came before this branch, as is seen by the following notes from *Miss Squire* :—

> Among the complaints which I received of matters outside the scope of the Factory Acts was that of suffering caused to young women by the vibration of the floor of their workroom. I found the conditions to be as described to me, and could well understand the nervous strain caused to the girls by the marked shaking of the floor on which they stood all day long. The cause of the vibration proved to be the pulsations of a great engine in the basement of the

* For the law on this point I may refer especially to my reports for 1894 and 1897. *See* especially Annual Report, 1897, p. 104.

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building, and girls were employed in the room in question because it was on the same floor as the manufacturing process, and they had to pack up the articles when made. I had an interview with the occupier, which resulted in the girls being moved to another workroom on the top floor free from the vibration, the difficulty of distance being overcome by the occupier promptly fitting a lift to work between the floors.

This question of vibration confronts an Inspector from time to time, and generally there are means of overcoming the effects or removing the cause, the adoption of which can be pressed upon the occupier, supported in the event of unwillingness by a reference to Section 2 of the Act of 1878. I have found the whole floor of a room on an upper story of a building erected as a factory shaking in a manner which could not but be injurious, as well as most uncomfortable, to the women and girls sitting there all day at their machines, the vibration being caused by a gas engine in one corner of the room, and on the floor above a perfectly steady floor with no vibration, although an exactly similar gas engine occupied the corner of the room; the explanation given me was that one of the engines had been firmly fixed and placed upon a specially prepared platform, and the other had not.

(k) *Dust and overalls.*

Miss Tracey writes on dust and overalls as follows:—

Would it be asking too much that rag sorters, guncotton sorters, and others subjected to the dust engendered by their occupation should compulsorily be provided by their employers with overalls and head coverings? When one thinks of the filthy dust and other impurities that are taken back to their houses by the rag sorters in their clothes and in their hair, and when one realises the few facilities they have of brushing and otherwise cleansing their clothes and person in their own homes, it seems but a small safeguard to ask for, and perhaps the question may be considered.

Even in the industries in which overalls and head coverings are compulsory difficulty sometimes arises through lack of intelligence in designing and lack of diligence in maintaining in good condition the coverings which are appropriate to the special industry. In a dusty room, where the heat was necessarily very great owing to hot cylinders, I found girls and women faint under the oppressiveness of heavy close sheeting, calculated to wear for ever, where light thin prints would have been the proper material. Great trouble has also arisen over the hideous and hot headgear that girls are sometimes asked by their employers to wear. Sometimes it is objected to because it is ugly, sometimes because it is "like a man's cap." I found generally that girls leaned towards the sun-bonnet type of head covering, and tried to devise a modified form that would be cool and light and with as few receptacles for dust as possible. This met with approval where I offered it, and now, with Home Office sanction, I have a supply from which I can send a pattern to any manufacturer or other person interested who cares to try it.

(l) *Explosives factories.*

Miss Tracey visited a few factories which are under regulation both of Factory Acts and Explosives Acts, and she notes that:—

Large numbers of women and girls are finding good work in Cornish explosive factories The rules for their own preservation are extremely strict, but the possibility of danger appears to act as no deterrent, and the competition is great to get into some of these works. The headache and *malaise* from which dynamite workers suffer at first soon wear off, and no further ill effects are felt. Possibly the beautiful situation of these factories ensures a certain measure of health, for few workplaces in England could boast such pure air, situated as they are on the edge of the cliff facing the sea.

It is to be hoped that this growing industry will bring a return of prosperity to Cornwall, and will in some measure make up for other industries that have died out, or are fast doing so. Ruined shafts and deserted mines speak eloquently of departed glory, and closed paper mills, woollen factories, and the idle plant in tin streams all tell a tale of a day that is past.

The anæmic appearance of so many of the workers in Cornwall must, I think, be assigned to causes quite apart from their employment, in which possibly unsuitable and unwholesome food takes a foremost place.

6. *Security in factories, workshops and laundries.*

(a) *General staff.*

I am glad to note that in the following observations *Miss Paterson* draws particular attention to the greatly increased danger of injury by accident in workplaces where there is no provision for sufficient and suitable means of lighting by day and by night, and I might observe that there is not only the long tale of accidents causing injury to life and limb that might have been prevented by due attention to this matter, but also the equally tragic though more slowly wrought ill of injury to eyesight.

In addition to several cases referred to H.M. Inspector under the Cotton Cloth Factories Act, and those referred to the Examiner of Particulars, I have notified to H.M. Inspectors of

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districts 61 cases of defective fencing and 6 cases of irregularities relating to men and boys. I append a table of these cases :—

Engines	4 cases.
Hoists	3 „
Shuttleguards	5 „
Belts, pulleys, and gearing	13 „
Shafting, &c.	21 „
Laundry machinery	6 „
Circular saw	1 „
Stamping machines, presses, and guillotines	8 „

In addition I have, by arrangement with H.M. Inspector for the district, in many instances, given direct instructions to the occupiers of factories on these points.

I have frequently during the year noted one serious element of danger in many factories, namely, the absence of daylight. A dangerous machine is rendered doubly dangerous, an unguarded hoist-well doubly a death-trap when it is placed where daylight does not penetrate. True, artificial light may be provided instead, but in the absence of any regulation on the subject there is a tendency to economise in the matter of artificial light, and one has to go very warily in narrow passages, dark corners, unlighted stairs. Unfortunately, the worker hurrying with a burden to the warehouse, the hoist, or down the stair is not always able to go warily, and an accident happens, "due," says the employer, "to her carelessness; she should have looked where she was going." I have more than once had to point out that if her experience was like my own she would not have been able to see where she was going.

Another element of danger in many factories is the stair from one flat to another when it is unprovided with handrail or any protection. In laundries with cellar washing houses these are very frequently found dark, steep, slippery. The large loads carried up and down them is urged as making anything but this ladder impossible, but this difficulty might be overcome, and I have observed that I seldom go down one without a warning from the occupier : "Please be careful ; it is a very bad stair." If a bad stair for me, at least as bad for the heavily laden women, often elderly, who toil up and down it.

In previous reports *Miss Paterson* drew attention to the conditions in two tin box factories where the dangerous machinery common to all tin box factories is as fully fenced as the present knowledge of the subject can secure, and yet in one there is a far greater number of accidents at guillotines and stamping machines than in the other. *Miss Paterson* explained that, in her opinion, the reason is found in the inefficient lighting in the factory where most injuries are inflicted.

I recently visited an iron works in Falkirk where a girl had lost part of her hand at a large stamping machine. This dangerous machine stood in a room insufficiently lit by grimy skylights during the day and at night by poor gas jets. The ill-lit condition of the workroom was sufficient to account for the accident. Towards the end of 1900 I visited at dark a large galvanising works in Birmingham, where a small low side door led from the furnace room with its glare of light into a dim stamping room ; running by the lintel on the dark side was a great driving belt, so low that I had to stoop to prevent my hat touching it, quite unfenced. The manager had directed me through this, and when I pointed out the danger to him, he hastily said that "workers had no business to use it." When I asked "Do they use it ?" he replied "Yes."

(b) Steps taken to secure fencing in factory laundries in West London.

The instructions issued by the Secretary of State prescribe for an Inspector of this staff to whom the charge of certain factories is assigned the same course in respect of unfenced machinery as for the rest of the staff, that is, the reference of any question of fencing found to be necessary to the Inspector in charge of the remainder of the works in the district in which the assigned works are situate. The effect of the regulation in operation in the assigned area is however, perfectly distinct in character. There the responsibility for registers, enforcement of notices, and for completeness and thoroughness of inspection in general rests entirely with myself and my staff, and the necessary effect of the regulation which provides for the consultation of an Inspector outside that staff has been to secure a more than redoubled attention to the special dangers of those factories which are mainly so far assigned, namely, factory laundries. The rapid recent development of machinery of a specialised kind in laundries produces a situation and a class of risks which, combined with the altogether recent regulation of laundries, leaves most Inspectors of any experience almost at the same starting point ; knowledge has, in

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fact, to be acquired by all alike, and it is only too easy to overlook hidden dangers until the inevitable accident occurs. It is only by close scrutiny of the accident reports in a given industry, coincidently with incessant study on the spot of all the developments of machinery and subdivision of labour, that effectual knowledge can be attained of the safeguards necessary in that industry. It is my hope, which is encouraged by the results so far obtained, although the figures are comparatively small, that in this West End laundry industry (which presents in a small compass all the characteristic features of the trade), that in a short time every foreseeable danger will be so guarded against that accidents and risks will be reduced to a minimum. The total accidents reported to *Miss Deane* from February, 1900, to January, 1901, were 37, divided as follows :—

Calender	4
Ironing machine	8
Wringing machine	8
Mangle	2
Hydro	2
Lift (fatal)	1
Washing machine	1
Traversing part of collar machine	1
Scalds	2
Falls (one fatal)	6
Flywheel of engine	1
Accidental blow from handiron	1

The greater number of these occurred in the first six months of *Miss Deane's* charge, thus :—

February	2
March	3
April	1
May	5
June	5
July	7
August	2
September	1
October	3
November	1
December	6
January	1

Taking note of the rise in December, possibly the results are due to the rise and fall of pressure of work according to season, but it is to be noted that in the current year the reports show no sign of increase yet, and surely something may be attributable to the progress of fencing where it was entirely wanting at first. Calenders, ironing machines, and wringing machines, accountable as regards the operative part of the machinery for more than half of the accidents, were without guards, which are now being required. There are calenders on which three and four accidents are known to have occurred before a guard has been secured to the lip where the injury arises. Every accident is investigated, and I have requested *Miss Deane*, wherever practicable, to arrange for a colleague to accompany her on the inquiry into the nature and causes of the accident, and the best means of preventing them in future. In this way the responsibility of every member of the Women Inspectors' Branch for noting dangers in machinery, just as if the sole responsibility for ordering the guard were assigned to them, is made clearer. It is

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the more important that this should be recognised, and knowledge increased precisely in the area where the outside expert only visits on receipt of a notice of defective or absent fencing.

This experience, from a fresh standpoint, of the nature and effect of accidents in industrial life only deepens the conviction I had before, that no injury by accident to the worker at her machine or bench is minor or unimportant that in any way impairs her wage earning capacity, and that nothing short of complete reporting and close scrutiny of *all* accidents causing such injury will give control of their causes. The loss of a finger or part of a hand may be as serious a loss to the manual labourer as impaired mental strength to the brain worker. Moreover, some of the slight injuries reveal hidden or unforeseen risks that in another instance might produce a fatal accident. A worker in a hot calendar room naturally wears the neck of her bodice loose and perhaps finishes it with a lightly knotted ribbon or scarf. Going into such a room I found a girl with face badly scorched (but not incapacitated for more than two days). The accident, unreported, was due to the long-worn but now discarded scarf caught by unusual nearness of the girl to the calendar rollers. Nothing but complete control of the machinery and presence of mind in the forewoman saved the girl from a sudden and terrible death. Much could be learned from this "slight accident" only discovered by chance.

Miss Deane's report on this section of her work in laundries is as follows :—

> The dangerous condition of the machinery everywhere in laundries, large and small, was one of the matters to which attention had to be immediately given.
>
> To the large majority of the laundry occupiers the necessity for guarding dangerous machinery appears in the light of quite a new idea. The most elementary guards were lacking.
>
> Eighteen per cent. (33 out of 186) of the flywheels were found unguarded, and very much time and attention have been spent in the subject by Mr. Blenkinsopp and by myself. The transitional stage of the whole industry is largely accountable for this condition. I question whether in any other trade in the country so much ignorance of elementary matters connected with machinery is to be found.
>
> To have a gas engine that will drive the wringer and the heavy old "box" mangle is the ambition of the smallest "laundry," and, accordingly, it is by no means uncommon to find proud possessors of second-hand engines and machinery who have but the vaguest idea of the management of it, while the workers are even more ignorant, and the needful experience is often bought at some risk. "Since the boss tied the old mangle up to the new engine she has taken to leaping back and forth that alarmin' and that sudden-like that it's a wonder I've not been caught out sooner nor I have been" was the plaintive remark of an old woman, whose occupation had developed strange new possibilities to her, when the history of her crushed hand was enquired into. The engine itself was found installed in the washhouse with two other old washerwomen, its flywheel totally unguarded, and the ricketty little house shook and vibrated all over since the arrival of the surprising inmate.
>
> The necessity for reporting and registering accidents is only slowly becoming realised, and I cannot flatter myself that the few which are reported represent anything like the number which actually occur.
>
> This subject is one which next year will receive more attention than has been possible in the stress of the first year of new work.
>
> Calenders and wringers are, undoubtedly, the cause of the largest number of accidents in laundries, and both class of machines can and should be guarded. The "minders" and "feeders" of the former machine, especially, are very young, and often heedless girls from 13 to 18 years old, for whose protection a guard is of the first importance.

Miss Vines, who has continuously worked under *Miss Deane's* guidance in laundries, touches, in her report, on the increased danger to young life from the development of laundry machinery, on which, by subdivision of labour, the work of quite little girls becomes useful. She remarks also :—

> Accidents from the unguarded rollers of wringing machines show no sign of decreasing, and if in a laundry one sees a worker with one finger too few, one may be pretty certain it was lost by being caught in an unguarded wringer.
>
> With reference to the question of safety, one cannot help remarking on the danger in workshop laundries of unguarded hoists and trap-door lifts. I have myself twice been told, when inspecting quite small laundries, of terrible accidents from these causes. On both occasions the

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open trap-door lift had been forgotten and persons had fallen right through. In one case a woman was laid up nine months through her injuries. In the other, the worker, also a woman, fell, and then hung in mid-air, and with the instinct of self-preservation mighty within her clutched with her hands on the floor above until, wonderful to relate, she was drawn up by the employer and saved from an awful fall. The escape was miraculous, but the effects of the shock were not soon overcome. However, I am glad to be able to relate that the proprietor had the use of the lift discontinued and the trap-door nailed down.

Miss Sadler, who has also done much work in *Miss Deane's* area, comments on the growth of small factory laundries and the accompanying dangers :—

The rapid growth of the small factory laundry is a striking feature. It seems to be due partly to the increased cheapness of certain makes of machinery, and largely to the fact that the wage bill is thereby so much lessened.

It is a pity, however, that the introduction of machinery fails to force occupiers to secure better premises and improved sanitary conditions. Too often the plant is installed in the same building which has served for a "hand" laundry, and is crowded into one or two small low-ceiled rooms, never intended for, and quite unfitted for, the purpose. The prime mover, the small gas or steam engine, is found in a badly-lighted basement, and in the charge of a man who knows little or nothing of the dangers or management of machinery. The fencing of the flywheel is in many cases inadequate—a wash tub often serves the purpose. Other dangerous parts are equally disregarded, and it is difficult to persuade the owner that an accident may occur even with a low power. In few cases do the makers of these cheaper forms of machines send them out fenced, though this may be more the case in the future, owing to the complaints of the purchasers that this should be included in the estimate.

Very often two or three of these small factories may have their machinery driven by a common motive power, and the danger of accident is rendered greater where there are no means of separate control. Should instantaneous communication have to be made by whistle or other means with the engineer in charge he might possibly be doing other work at the time the accident happens.

7. Industries and processes with excessive hours.

(a) Laundries.

Turning to the more general features of employment in laundries (workshop as well as factory laundries), I strongly support *Miss Deane's* view that in many aspects the most important part of her work in the year has laid among the laundries thickly clustered on the borders of the western end of the administrative county of London. Her interesting and valuable researches into the health of laundry workers mark the possibility of a new beginning in control of the subject, and I think press home, in a more forcible way than all the past reiterations of administrative difficulties in the existing law, the need of a more rational system of regulation of laundries. These administrative difficulties have, however, also received much attention from myself and *Miss Deane*, and it is perfectly clear, as she points out in the following report, that the laundry industry is becoming rapidly a more highly organised factory industry than many which are under the strictest provisions of the Factory Acts. Many separate laundries are run by single large companies, and the great aim has been to control the management of conditions of employment in these separate workplaces by attempting to secure effective attention to the matter at the headquarters of the company. In one case *Miss Deane* brought home, by a successful prosecution against the management of one of such a company's laundries, a conviction that it would be most satisfactory to conform in letter and spirit to the law, even though at first there had been on their part an intention to appeal to the High Court against the decision of the magistrate which supported our reading of the law as to periods of employment. It has been necessary step by step to thresh out the question of notices as to periods of employment, and a most important advance has been made by the introduction of a prescribed form of notice of the variations which section 22 of 1895 allows daily to occupiers of these workplaces.

So many were the problems brought forward by *Miss Deane* throughout the year, arising from the lax deference shown by employers to the provision that notice, affixed in the laundry, must precede (or at least accompany from the outset) any change in the specified periods and meal times, that it appeared to me necessary to replace all informal methods of affixing a variation notice by such a rigidly prescribed form as the Secretary of State has power to apply. With only the limited form of notice on the unrevised laundry abstract, occupiers resorted (as has been shown also in previous annual reports) to use of slates, scraps of paper, or verbal intimations to the workers of the frequent changes.

By repeated attempts to bring home infringements of the weekly period of employment *Miss Deane* demonstrated to me that without a complete notice of employment for the week the view of the law officers that the notices must no more overstate the weekly

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than the daily limit could not be enforced. It then became clear to me that the variation notice must be as strictly prescribed as the original notice, in order that any addition to hours by the employer on one day of the week might be at the same time balanced by a deduction on some other day. I reported to you accordingly in November, and even though no amendment of the law relating to laundries should place them, as we hope, once and for all on the same basis as factories and workshops, still the prescribed form 51 issued in the current year to laundry occupiers will render it possible, as it has never been before, to confine generally the hours in laundries to the existing nominal limits.

Another important administrative question which came to me for settlement was the extension of the term "employment" in a laundry. The following typical cases of objection or difficulty made by occupiers were presented by *Miss Deane* :—

(1.) A young person, in addition to a period of 60 hours work in a week in ironing, folding, starching, or tending machinery, is required to work three or four hours in cleaning the floor and the work benches or in cleaning and polishing the machinery.

(2.) A woman employed in a "shop laundry" as packer, sorter, marker, and general counter-hand is alleged by the occupier to lie outside the regulation of the Act. This shop laundry is a steam laundry, the packing and sorting room of which (communicating internally with the rest of the laundry) is fitted up with a shop-window and counter. The customers hand their soiled goods across the counter to the sorter and receive the goods from her across the counter when clean. She does not, that is, as in another laundry, pack the clean linen in a basket and hand it to the van men for delivery, she folds it in a paper and hands it to the owner directly.

(3.) A number of young persons are employed in a laundry in marking with needle and thread the customers' linen with distinguishing marks in order that it may not be mixed and lost.

In some such cases an attempt was made by the occupiers to narrow the meaning of "employment" so as to obtain from the already overworked girls extra hours of subsidiary manual labour. In order to clear up the matter, the law being not absolutely explicit in its definition, I presented to you my opinion as follows :—

Section 22 of 1895 neither gives any definition of employment nor does it specifically extend to laundries section 94 of 1878. It is so worded, however, as to leave it open to the courts to give the widest possible interpretation to the term "employment" in any laundry carried on by way of trade or for purposes of gain. Further, it applies to laundries all the sections relating to powers of Inspectors, fines, and legal proceedings for any failure to comply with the provisions of section 22, sub-section 10 (4). This directly brings in section 83 of 1878, in which terms are used which are defined only by sections 93 and 94, viz., "factory" and "employed." The use in these sections of the terms "manual labour" and "handicraft" seems to me to make quite clear the limits which should be assigned to the meaning of employment in section 22 of 1895. I propose that we should make that section include all work whatsoever in a laundry that is manual as distinct from clerical, so long as it is in connection with the trade or business of a laundry (and is not mechanics' or labourers' work in repairing machinery or the laundry buildings). This would cover cleaning of machinery or workrooms, fetching and carrying in the laundry, sorting, marking, and packing. It would not cover the checking of accounts at the counter in a shop-laundry, but it would cover the carrying of the linen to and fro and the handing out and taking in. This is the more important as the Shop Hours Act, 1892, possibly does not apply to the counter of a laundry (*cf.* section 9 of 55 & 56, Vict. cap. 62).

I think this view would meet the points raised by *Miss Deane*, and no doubt there are others of a similar kind raised by Inspectors in charge of districts.

With this opinion you agreed in all respects, and we are enforcing the section in this sense.

Miss Deane's general report on laundries brings out in clear relief the transformation that has, almost unnoticed, in a brief period, been nearly effected of a woman's industry of the old type to a modern industry on a great scale. Such a change with its own special variations we shall probably yet see carried into the heart of the stronghold of the still more conservative millinery and dressmaking. The report is as follows :—

The most important part of my work this year has lain among the laundries, which in some districts of London and the neighbourhood may almost be called the "staple industry." In certain localities whole streets exist, nearly every house in which is a laundry within the meaning of the Act.

This trade is at its present stage of development peculiarly interesting to the student of industrial questions. It is in process of rapid transformation from a domestic into a regular factory industry, in which machinery and division of labour plays an important part in the organisation. In the last eight years the development in this direction has been extraordinary.

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At one time it was only in a few large steam laundries that machinery was to be met with, now it is no uncommon thing to find a row of houses in separate occupation, the backyards of each of which is roofed in and packed with laundry machinery, all driven by an engine installed at one end of the row. The old-fashioned "washerwoman" is fast disappearing, and is superseded by the enterprising young "laundry proprietor," who, turning the tubs out of the back kitchen, fills their place with "washing-machines," and connecting them with a little gas-engine (tightly wedged in the dark broom-cupboard under the stairs) blossoms forth as the owner of a "factory laundry," ready to deal with six times the amount of work that his predecessor could hope to cope with, and to compete fearlessly with scores of similarly equipped rivals.

Side by side with this development in the smaller laundries is to be found the rapid multiplication of the large laundry companies and syndicates, certain of which own as many as a dozen or more fine well-equipped steam laundries filled with the latest ingenious inventionr in labour-saving machinery and organised into "departments" in which the division of labour is at least as marked a feature as in the majority of non-textile factories. In such cases a single shirt will pass through seven or eight different machines in the process of ironing alone. In place of the elderly married woman or widow "washer" we find skilled engineers in charge of a shedful of machinery still called the wash-house, while scores of girls and young women from thirteen years upwards "tend" the various kinds of ironing machines, with exactly the same mechanical precision and routine as those in any other factory. Even in those departments where machinery is not required, for instance, the sorters with their staff of "markers," the dryers who fill and empty with almost automatic regularity the series of drying-closets through which hot air is driven by propulsion fans, the labour is organised and regulated as in an ordinary factory.

With this advent of machinery and subdivision of labour the whole character of the industry has changed, the "uncertainty," so much dwelt on as a peculiarity of laundry work, practically disappears. The "capacity" of each machine and of the whole plant is known to a fraction; the amount of work that can be dealt with per hour can be accurately calculated, often more so than in many other factories. The class of work in dealing with which this development becomes most useful is that which has often been represented as the most difficult to undertake—namely, "hotel and restaurant work," where the quantities fluctuate a good deal and are often very large. The laundry proprietor who undertakes such work, if properly equipped (as he should be for such an enterprise), on the modern system, knows exactly the limit of his "capacity," the outside amount with which he can effectually deal and which cannot reasonably be exceeded.

From the smallest to the largest laundry it is becoming more and more evident that the industry is passing—has indeed in some respects already passed—out of the peculiar position which it has hitherto occupied, and is taking its place alongside ordinary trades, while its workers are becoming to a constantly growing extent ordinary machine-minders, more or less skilled according to the class of machines they control.

This change in the economic conditions of the industry is of great importance from the point of view of legislative regulation. It is impossible not to be struck by the contrast afforded by the spectacle of the steam laundry full of labour-saving machinery engaged mainly on "contract" work, with every modern device for regulating and organising the "output," the capacity of each machine and department of which is perfectly gauged (so many thousand "pieces" in a given time), and that of the dressmaker or milliner employing only hand labour, often very highly skilled, dependent on mere passing whim or fancy of a fleeting season, struggling with "uncertainties" and "rushes," and other difficulties as great as any with which the laundry has to cope, and yet successfully complying with regulations which the factory (for such it practically is) could often more easily conform to.

I have found the whole question of the "period of employment" in laundries, and the methods of effectually regulating and controlling them, becomes less complicated as all the provisions of the law are systematically enforced. When once these occupiers can realise that the first and second paragraphs of section 19 of 1878 apply to their case as definitely as in that of any mill-owner, and further that the "period of employment" to be defined on the notice is not only a daily but a weekly one, the law becomes less easily evaded.

A very large part of my time, and that of the colleagues who have helped me, has been absorbed in the instruction which the great ignorance of the law displayed in the laundries has rendered imperative. The difficulty of understanding the Act is a source of incessant complaint, and it is certainly true that the very elasticity of its provisions, instead of being a cause of gratitude, is more often than not treated as an excuse for misunderstanding and evading it, while it affords a plausible argument for the defendant in every prosecution. It is a constant grievance that some occupiers "get more out of it" than others less fortunate or less skilled in the interpretation of its provisions. It is a fact that equal and uniform administration of it is for more difficult than is the case where definite time limits are fixed by which all are equally bound. Those occupiers who endeavour to carry out its provisions loyally are at a far greater disadvantage, compared with less scrupulous rivals, than the ordinary workshop occupier, and are far less easily protected by the Inspector from such unfair competition.

The whole "machinery of notices" which forms the effectual means of enforcing the principles of the Act, if important in the case of ordinary factories and workshops is tenfold

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more so in laundries, and as a first step to clearing up the position this "machinery" had to be got into working order. The present notion of many laundry occupiers that it is sufficient to allege vaguely that "no woman in the laundry has worked more than 60 hours in the week" (a statement which in nine cases out of ten it is practically impossible for the Inspector to verify) is, I hope, being gradually superseded by a more rational and definite view of their responsibilities. The extraordinary habit of inscribing the hours of work and meals on a slate, or on any little stray bit of paper stuck up anywhere—a system which lends itself to a wholesale evasion of the law, and which I found was very general—was the first point to remedy, and the institution of a "prescribed form" for this most important notice which now comes into force will check many abuses. This form, which makes clear the necessity for specifying a weekly as well as a daily period of employment, will certainly tend to a more orderly method of apportioning and arranging the working hours, while it will give to the Inspector and to the workers the opportunity which the Act provides for them of definitely verifying the accuracy of the notice, and to some extent controlling the excessive hours of work. That these are very often seriously in excess of those permissible under the Act is unfortunately as clear as the offence is difficult to check. I am convinced that the only hope of doing so lies in the strictest adherence to the very letter of the law. Thus the daily 15 minutes' "lunch" which it is the habit to "count out" of the total period of employment (an extra hour and a half of work being added to some day in the week as an equivalent for this needful rest-time), is far, less likely to degenerate into a 5 or 7 minutes' breathing space only, when it is realised that unless actually given in full at the time specified in the notice, so that the Inspector may verify the genuineness of the arrangement, a prosecution may result. Again, in regard to overtime, a careful enforcement of the provision which requires that the two hours of permissible overtime shall be fixed and specified to the Inspector beforehand on the prescribed form 21a, and that as in other factories overtime is not legal except in these specified hours, enables some slight control to be exercised in this matter, and tends to eradicate the impression, unfortunately very common, that the Act of 1895 merely affords legal sanction to conditions which—previously a subject of deprecation and concealment—can now be boldly acknowledged.

A series of successful prosecutions for employment after the hour specified on the notice affixed in the laundry (irrespective of whether the daily or weekly limit has been exceeded) has had an excellent effect in emphasizing the importance to occupiers of notifying accurately the actual working hours and of adhering to the undertaking thereby given to workers and to Inspectors. Next to prosecutions under the Truck Act, prosecutions under section 22 of 1895 (the "Laundry" section) involve perhaps more technical complications and pitfalls than any other that the Factory Inspector has to undertake, while they throw on the poor women and girls the disagreeable onus of entire proof of their employer's offence to a greater extent than perhaps in any other cases.

Accustomed to the conditions of life and work among ordinary factory workers, nothing is so striking to the Inspector as the spectacle of numbers of young girls from 14 years old and upwards all legally employed at 10 or 11 o'clock at night in the ordinary factory labour of tending machinery. Passing at night from one factory laundry to another, and finding the young calender feeders employed in their mechanical task of "feeding" the large steam-heated power-driven ironing-rollers with the damp linen to be ironed (a cloud of steam rising as each "piece" is passed through), it is impossible not to speculate on the effect of the work and the hours on these young girls. One can only feel surprise that accidents are not more numerous when one realises that the slightest carelessness or inattention may result in the fingers or hand being drawn between the hot cylinders, and when one considers how easily such inattention may arise in the case of the overtired young workers. In few, if any other industry, are the daily working hours so long. Working and standing in the steamy hot atmosphere of a calender-room from 8 a.m. till 9 or 10 p.m. all the week, with the exception of one day, is an arduous strain on the young constitution.

The whole work of a laundry is done standing, and the practice of so apportioning the legal "60 hours a week" that on three or four days in the week the women have to work from 8 a.m. till 10 or 11 at night—a practice which could be, and where there is proper organisation often is, rendered needless—has its natural result in the form of disease to which laundry workers are extremely liable. It is well known that they suffer much from varicose veins, and terrible ulcers on the legs, but the extraordinary extent to which they are so afflicted is, I think, not generally known. In many other trades standing is a necessary condition, and it is difficult to account for the far greater prevalence of this disease among laundry-workers than among others of the same class engaged in ordinary factory occupations, except on the ground of the long and the irregular hours.

With a view to arriving, if possible, at some definite knowledge of the position of laundry-workers, as compared with other women of their class and situation, in regard to the question of health, I have this year devoted some time to enquiring into the subject in the districts under my charge and in neighbouring localities. In the extreme west and in the south of London laundries abound, and these districts are also the home of industrial workers of all kinds. Hammersmith, Notting Hill, Acton, Fulham, Battersea, and Clapham afford a typical field for such an inquiry. When overtaken by illness—such an illness as is likely to arise out of their occupation—it is not to the hospital but to the poor law infirmary that these women gravitate, and, accordingly, I made enquiries at the infirmary at Isleworth, the inmates of which are drawn from Acton, Chiswick, Brentford, and the surrounding districts; at the infirmary at St. John's Hill, to which patients from Battersea, Wandsworth, Clapham, &c., are sent; at the Fulham and Hammersmith infirmary; and of the Kensington District Nursing Association, which covers Notting Hill, a typical "laundry district." By the kindness of the

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superintendents of the two first infirmaries, I have been able to examine the carefully kept records of the number, ages, occupations, and diseases of the patients. The following tables compiled from these records, speak for themselves, and afford some indication of the kinds of disease to which laundry-workers appear to be particularly liable :—

TABLE A.*—Isleworth Infirmary (includes Acton, Chiswick, Brentford).

———	No.	Suffering from Ulcers of Legs.	Proportion.	Phthisis.	Proportion
1898.					
Laundresses	58	9	1 in 6	6	1 in 10
Women, other than laundresses ...	179	7	1 in 25	7	1 in 25
1899.					
Laundresses	79	13	1 in 6	9	1 in 9
Women, other than laundresses ...	218	7	1 in 31	11	1 in 20

* I have omitted, for the sake of clearness, any fractions in giving the figures showing the proportion of cases to the total number of patients.

TABLE B.*—Wandsworth and Clapham Infirmary (including Battersea).

——	No.	Suffering from Ulcers of Legs.	(Proportion.)	Rheumatism.	(Proportion.)	Bronchitis.	(Proportion.)	Phthisis.	(Proportion.)
1899.									
Laundresses	247	36	1 in 6	16	1 in 16	45	1 in 5	21	1 in 11
Women, other than laundresses...	1,171	50	1 in 23	49	1 in 22	129	1 in 9	63	1 in 19
1900.									
Laundresses	199	27	1 in 7	12	1 in 16	21	1 in 9	18	1 in 11
Women, other than laundresses...	1,127	41	1 in 27	69	1 in 16	133	1 in 9	59	1 in 19

* I have omitted, for the sake of clearness, any fractions in giving the figures showing the proportion of cases to the total number of patients.

At the Fulham and Hammersmith Infirmary about the same proportions apparently exist, but it was not so easy in this case to collect accurate statistics, and the necessary time for doing so was not at my disposal. The figures supplied by the records of the cases attended by the Kensington District Nursing Association show a large proportion of ulcerated legs and of forms of internal disease aggravated by standing for long hours. I was struck by the absence of any particular liability to skin disease, for on all hands I had been informed that washer-women were not uncommonly afflicted by a local inflammation on the hands and arms due it was thought to the action of soda, soap and other chemicals, and to incessant contact with hot water. This effect of the occupation was noticed in the Out Patients' Department of Saint Mary's Skin Hospital some years ago, but had since almost disappeared. The immensely increased use of machinery in the process of washing (even in very small hand laundries the hand-turned washing machines is often found) may account for this difference.

The constant exposure to steam, standing on wet floors, the great heat in which the work is carried on, and the long hours at exhausting work, amply explains the tendency to pulmonary disease. The badly arranged floors in even large wash-houses are a constant source of discomfort and probably of ill-health to the workers. The Act requires that they should be "drained in such a manner as to allow the water to flow off freely," but makes no provision that it should be drained off on the spot where it is discharged. It is not at all uncommon therefore to find that the yellow and foul water from a row of tanks or washing machines

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at one side of a wash-house flows all across the floor and *over the feet of the workers* before eventually reaching the drain. This unsatisfactory arrangement is to be found in many jam factories also, and is left untouched by the Act. In one laundry, where a cataract of dirty water was discharged over the feet in this manner every 12 or 18 minutes from certain patent washing machines, the occupier triumphantly pointed out that it "flowed quite freely" to the drain on the other side of the shed.

One of the most unsatisfactory results of the present system or lack of system of working hours in laundries is the unfortunate moral effect on the women and girls of this irregularity. The difficulty of securing steady regular work from employees and of ensuring punctual attendance is complained of on all sides, and the more intelligent employers are beginning to see that this is the natural result of the irregularity in working hours, which is still too readily fostered by many who do not realise its mischievous effect. Women who are employed at arduous work till far into the night are not likely to be early risers nor given to punctual attendance in the mornings, and workers who on one or two days in the week are dismissed to idleness or to other occupations, while on the remaining days they are expected to work for abnormally long hours, are not rendered methodical, industrious or dependable workers by such an unsatisfactory training. The self-control and good habits engendered by a regular and definite period of moderate daily employment, which affords an excellent training for the young worker in all organised industries, is sadly lacking, and, instead, one finds periods of violent overwork alternating with hours of exhaustion. The result is the establishment of a kind of "vicious circle"; bad habits among workers make compliance by their employers with any regulation as to hours very difficult, while a lack of loyal adherence to reasonable hours of employment by many laundry occupiers increases the difficulty for those who make the attempt in real earnestness.

The present vague indefinite methods encourage those bad habits on both sides. Many employers gladly welcome further regulation as a means of organising and controlling their workers. "What is the use of my making the effort to so organise my work that the laundry shall close at 8 p.m. like other reasonable work-places do," said a disheartened employer; "all the neighbouring laundries are open till 9, 10 or even 11 o'clock, and my women find it suits their irregular habits to go and work in these places after they leave my premises; they are then too tired out to arrive at my laundry till 9.30 or 10 next morning. If we all had to keep the same rules and close at the same time the law would work fairly; as it is I must just scramble on with the others in the stupid expensive old way."

The division of the work into two or three main branches, the workers in each of which, are entirely separate—which is becoming practically universal—makes it quite possible to regulate the work so that the daily hours shall approximate to those in any factory or workshop—the washing department beginning on Monday and being free on Saturday, the ironing department substituting Monday for the Saturday as the "off day" and beginning work on Tuesday.

The need for an extension to laundry occupiers of the provisions regarding lists of out-workers is much felt. Ironing is frequently "given out" to be done off the premises. At one small steam laundry 20 out-workers are employed, and control in the matter of infectious diseases for instance is at least as much needed in places where the under-garments of the public are ironed every week as in places where new garments are made. The plan of giving work out to be taken home to do by a woman who has worked the full time in the laundry is also resorted to, and "plain ironing" is thus given out in small "factory" laundries. As section 16 does not apply to laundries there is no means of checking it.

Miss Sadler sends the following observations :—

Too much light cannot be thrown upon the state of some of the small "hand" laundries, especially in the Soho district of London.

The owners of many of these laundries are of French or Italian origin. They invest their small capital in the rent of a house, or part of one, sublet the upper rooms, and devote the lower to their trade. They appear to start with the impression that any house is good enough for a laundry, given a fair supply of water, and show no consideration whatever for the health of their workers, or the number of hours they are employed. In many cases they profess to understand no English.

The houses so rented are part and parcel of the poorer streets which run like rabbit warrens between the more fashionable thoroughfares. The front room on the ground floor, originally intended for a shop, with large fixed plate-glass windows, forms in most cases the principal ironing room. It opens on to the street, and the only ventilation is by the open door. A coke stove in the middle of the room throws out great heat, and to make the resemblance to a hothouse still stronger the wet clothes to be dried are hung on lines across the top of the room, about a foot only from the heads of the workers.

The wash-house is placed in the basement room, more often like a cellar than a room. In one I came across, the worst of any, it was not more than six feet in height, and ventilated only by the door leading up to the house. The place was black with accumulated dirt. The floor was covered with water. A gas jet in one corner gave the only light. A copper in another corner poured out steam for which there was no means of escape, and which was so thick as to hide the two workers almost completely from view. The temperature was so high that the perspiration streamed off their faces. This was, of course, an exceptional case, but one

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having many points in common with others which have hitherto escaped the attention of the proper authorities.

It must not be forgotten, too, that laundries of the kind described above may be exempted from inspection if it can be proved that not more than two persons besides members of the same family are employed.

It is true that in nine cases out of ten the washers only work from Monday to Friday, and the ironers from Tuesday to Saturday in each week; but it is open to question whether the odd days are not spent in other workshops under similar conditions, and in any case the number of hours which a worker can be employed on any one day is excessive. The work itself is laborious. The washers are exposed most of the day to heat and steam in these basement rooms quite unfitted for the purpose, their arms plunged into water strong with soap and alkali, and themselves exposed to risk of contagion from the clothes they wash.

The ironers have to stand equally long hours in ironing rooms which are equally badly constructed Often but scantily clothed on account of the excessive heat, they have to pass in and out of the cold outer air during their work, and thus render themselves more liable to the respiratory diseases said to be so prevalent among them.

Miss Sadler further touches on and supports the old suggestion for requirement of a specific license for use of private dwellings as work-places as being particularly desirable for laundries.

Miss Vines reports as follows :—

From talks I have had with district nurses about their patients in domestic laundries, it would seem that inspection is not unneeded.

One case, that of an old woman with eczema in the neck, was particularly revolting. The nurse told me how sometimes, when she went to the patient's house, she would find the customers' fancy embroidered linen and silk handkerchiefs used *pro tem* as bandages, and wound round the laundress's neck. This good woman, it appeared, was always very anxious to get the clothes home by Saturday. If they were late she said the servants would come enquiring for them, and if they once even came down the street she was sure neither they nor the washing would ever come again.

Another year's work among the laundries of West London confirms my opinion that, without a specified morning and evening time limit, as in other factories and workshops it is almost impossible to satisfactorily regulate the hours.

The system of specifying different hours for different departments which prevails in so many laundries is practically useless—for this reason: workers are often engaged in what may be defined as "combined employment," *i.e.*, their employment is not confined to one department. For instance, in the smaller laundries women are sometimes employed as washers at the beginning of the week, and as ironers at the end. The 60 hours' limit may thus easily be exceeded without detection. The specified period of employment for washers ends, perhaps, on Thursday. The Inspector enters the laundry late on Saturday night, and finds all apparently in order. The washers are gone. The ironers are late, but then their specified period of employment is till 11 p.m.! On the surface everything is right, but how often on investigation is it found that the worker is engaged in "combined employment," and that although Monday, on the specified period of employment for ironers, is blank, yet on Monday this notice did not refer to the women found working, for then they were washers, and employed during the washers' specified period!

The same thing occurs in the steam laundries. A calender girl may often be employed at different times in the week and even on the same day in three different processes, *e.g.*, in drying, folding, and machine work; and in a large laundry detection of illegal overtime arising out of this combined employment is far more difficult, and excessive hours of work far more likely to escape notice.

Again, another argument for fixed hours is the fact that workers are sometimes employed on the same day in two different laundries. I have known an ironer start at 7 a.m. in one laundry, and finish work at midnight of the same day in another.

One finds girls of 13 without labour certificates being employed in most trying processes. Such a danger would, of course, be greatly minimised by registration.

The quantity of "treadle" machinery is very noticeable; but, with the exception of the case of one girl, I have no evidence of bad results from the foot action. This young girl was a neck-band machinist, and on the machine for about four months, when, owing to the injury it caused to her ankles, she had to give it up. She told me she never had weak ankles before, and that she thought the weakness was caused by always standing on one foot, and working the treadle with the other. The doctor, she stated, warned her she would become "flat-footed" if she kept on, so she gave up the machine work, and took to packing and sorting instead.

I reported last year, in connection with ventilation and temperature, on various unsatisfactory conditions. This year I have to note a very ingenious arrangement I have come across in quite a small laundry for reducing the heat of the ironing-room. The husband of the proprietress had formerly been an engineer. The ironing-room was on the ground-floor, and had a cubic

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capacity little over 2,000 feet, and contained the ironing stove. Seven women were employed in it at the time of my visit. Immediately above this room was the drying-room, with two good sash windows open at either end. An aperture, about one foot square, was made in the floor. With this was connected a shaft about four feet high placed immediately against and under one of the open windows. Two metal pans, each with four vanes, were placed at either end of the shaft: these revolved naturally. The effect of this simple arrangement on the ironing-room atmosphere was extremely good. In spite of the small cubic capacity of the room the temperature was not unreasonably high.

Miss Tracey says —

Once more I have to record the difficulties of inspection under the existing law, these difficulties seeming to grow in force with one's experience.

Prosecutions which could easily and advantageously be undertaken in any other trade have to be abandoned, owing to the practical impossibility of being able to rely absolutely on a witness being able to account for almost every minute of the time on six days some weeks previously.

When the law is readjusted I trust it will be impossible for a little girl, who had just passed her 14th birthday, to be employed on a Saturday after a long week's work from 7 in the morning to 9 at night. Two hours had been allowed for meals, and the limit of 60 hours had only been reached, not exceeded, so I could do nothing, but hope that the claims of these young girls would receive consideration shortly.

Again I must record that the exemption of the present domestic and charitable institutions causes great dissatisfaction to the other laundry proprietors. They complain bitterly of the competition of places which are allowed to work "all hours of the night," and I must say I think they are fully justified in their complaint.

(b) *Fish curing.*

Miss Paterson has continued her researches into the conditions of employment in the fish-curing industry in several of its chief centres on the east coast of England and Scotland, and I have forwarded reports from her. In the following notes she gives especial prominence to the unnecessary insanitariness of much of the work. I have personally visited a fish-preserving works in 1900, the revolting state of which merited far stronger terms than any she has applied. Floors of rooms in which this animal matter was being dealt with had a thick coating of *débris* trodden in, and walls, too long without lime-washing, were bespattered with the same matter. Overcrowding, lack of ventilation, and unsloped and undrained floors, made some rooms in this place a signal example of all that ought not to obtain in a comparatively newly-arranged factory for preserving of food, where the long hours permitted by law are freely availed of by the occupier. A long conversation with him, however, and co-operation of the Local Sanitary Authority, produced, however, in some weeks a very considerable improvement. The proposed provision in the new Factory Bill for drainage of floors where wet processes are carried on should be a material aid, if it become law, towards improvement of the conditions in several of the subsidiary processes in food-preserving works. It does not, however, touch the points covered by French and Belgian factory law, which alike provide for impermeable walls and floors where organic matter is dealt with, and for immediate removal from work-rooms of all organic refuse.

Miss Paterson reports as follows:—

There is one class of factory and workshop in which, above all others, one feels the need for special cleanliness, both in the factory and in workers, their surroundings and the utensils they use. I refer to those in which articles of food are dealt with.

Curiously the general standard (for there are conspicuous exceptions) is low, and one constantly finds conditions in these which cannot but be injurious to the worker, and must go far to hasten the decay of perishable articles. I have observed this strikingly in the fish-curing trade, where even the simple precautions taken in her larder by a careful housekeeper are unknown, and herring, instead of being kept, while in a perishable state, in a cool, dark, airy place, are thrown down in huge heaps to generate heat by their mass, and frequently under no cover at all, but exposed, as are the workers who deal with them, to sun and rain and every variation of climate this country can offer.

No industry is so exempt from factory regulation as fish-curing in its many branches. No industry, I venture to think, requires definite regulation more. I have before reported to you on the housing of the workers in this industry, and my experience this year has convinced me that in this work, which causes thousands of women to lead a nomadic life, the woman Inspector ought to be charged with special duties. In talking to the women who "follow the herring" round the coast, I found the yearly round for many was Stornoway in May and June; Shetland, Fraserburgh or Peterhead in July and August; Scarborough or Grimsby in September; Yarmouth in October; Hull in January for two months or more; then a short time at home until the season opens again at Stornoway. Defects and discomforts are condoned by local authorities and employers because the season is a short one. It may be a short one in any one

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of these places, but it is not a short one for the worker who, engaged by an agreement for which she has an almost superstitious reverence, takes things as she finds them, being usually able to recall to her memory, for her comfort, some time or place in which they were worse.

In Fraserburgh last summer, where, during the herring season, 3,445 women were employed, of whom 3,000 came from other parts of the kingdom, it is the custom for the employer to house the crews of women who work at fish-curing (gutting, salting and packing) for the foreign market. The majority of the yards have attached to them a shed in which barrels, &c. are stored in the winter. When these, or some of them, are removed in summer, the shed becomes lodgings for the girls, unfurnished save for a small fireplace or stove and some rough deal boards nailed together to form a bedstead. There are usually two beds, one on the top of the other, in the manner of berths on board ship, each to hold a crew of three women. When the store is insufficient rooms are taken in the town. According to the size of the room is the number of women who live in it (I omit those who successfully evade the local authority), but the required amount of cubic feet for each is frequently only secured by cutting away part of the ceiling so that the space under the rafters may be counted in. The women bring everything—bedding, cooking utensils, and any furniture they need, although the large wooden trunks with which they always travel serve as a rule for chairs, and not infrequently for table also. In this one room they eat, sleep, entertain their friends, and perform their domestic duties in what I can only consider marvellous harmony.

In Yarmouth, where the workers lodge throughout the town, great difficulty is often experienced in getting lodgings near work—a very important point when one considers the conditions of work there in wintry and stormy weather. The curing trade for the foreign market is carried on on a large plot of ground belonging to the town and rented to various curers. The farlins, or troughs, at each of which 10 to 14 women work, are scattered over this with the barrels. It is unpaved, undrained, uncovered. Working at great speed, as these women do, it is not possible to prevent some refuse or herring occasionally falling on the ground to be immediately trampled into it. The whole of the soil there seems to be impregnated with decayed or decaying animal matter which it is under present conditions impossible to get rid of. In cold, in wind and in rain, in the darkness of the morning hours and the darkness of night, with no shelter or care for their comfort, except some sanitary accommodation of the most insufficient and primitive kind, these women work on. What one feels most strongly is that it is all so unnecessary. There is no advantage to the fish (but rather the reverse) in their being exposed in this way. "The women are so hardy," says the employer. The prevalence of lung and chest diseases in many districts from which the fisher people are drawn is very marked, and, even granting their hardiness, it is at least a pity to force on them the rheumatism from which so large a proportion of our fishing people suffers in any case.

If the curing in barrels is carried on with undue exposure to weather, the making of kippers and bloaters has its drawbacks also. The important part of the workshop is the smoke-house, the high narrow building in which the fish are left at night in the smoke arising from the fires laid on the floor, and the splitting, pickling, &c., are generally in an adjoining shop. There would seem to be no reason why this process should not be carried on with some attention to sanitary requirements, but with one or two expections I have found these work-places small, so that the workers are uncomfortably crowded on to each other, and that there is no place to which to remove the refuse as it accumulates, and with bad flooring so that refuse and dirty water find an easy lodging in the depressions and instertices of the floor. The light is frequently very poor, in many cases there are no windows at all. The tentering or riving process goes on in the smoke-house, the women exposed as they work to the constant dropping of salt water from the fish hung up on the boards above, and very seldom with sufficient day-light to help them.

It is often contended that with good conditions long hours of work are more supportable, and bad conditions are condoned if the hours of work are short. In the fish-curing trade, however, conditions and hours alike leave much to be desired. The existence of an exemption has rendered the administration difficult and uncertain in result. It is noteworthy that in this trade, in which overtime is permissible to women on sixty occasions in the year, I have never found overtime notices in use in any workshop. The occupiers do not find them necessary. Starting with an exemption for one process, that of "gutting, salting and packing," the industry would seem to have shaken itself gradually free from control, until now we find fish which have been in salt for weeks dealt with as perishable articles. Given plenty of time and unsuitable surroundings every article of food is to some extent perishable, but when a herring has been kept in salt for some weeks there is no reason for working on it at night except the reason that day will bring other work, and in this seems to lie the cause of much of the late and irregular hours in the fish-curing trade. There is always an element of uncertainty as to the amount it may be possible or profitable to buy in the market on the following day, and on the chance of the supply being a large one it is, of course, desirable to have as much time and space available as possible. The curer knows, however, how many fish each of his crews of women can gut, salt and pack, or how many a woman can split, head and "tenter," or can "rive" in a given time. Of course there are variations in rates of speed in workers, but he knows the average; therefore if he regulated his work by the Factory Acts he could calculate easily the limit of the amount he must buy in the market for his workers to dispose of in regular hours.

"There is no reason," said a herring-curer to me, "why the workers in this trade should not have regular meal hours instead of having to take their food as they work," and there is also no reason, according to this curer, who certainly spoke for others also, why work should *ever* be

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continued later than 10 p.m. Fish caught so late that they have not been gutted at 10 p.m. will always keep until the following morning without suffering, or becoming more difficult to work. He was, however, clear that these benefits could only be secured by legislation.

One of the evils to which this want of regulation leads is the practice of employing the same person on the same day in processes controlled by the Acts, and in those outside their control. In one instance I found girls of thirteen to fifteen employed from 6 in the morning till 6 in the evening, in a regulated process, and then in an exempted process, until : "Well, I've not been working after midnight," one little girl of fourteen said to me.

Children of eleven and twelve, too young to work full time under the Acts, were here employed outside the Acts altogether. In another case in which a curer had a factory and also a kippering shop in the same town, the workers went from one to the other, always sure of their full day's work in the factory, followed very often by 5 or 6 hours' work in the other shop.

Fish-curing in all its details is not an attractive trade, but if it were carried on in well-lighted, clean, airy, well-drained workshops, provided with washing appliances and cloak-rooms, and if the hours and conditions of work were regular and reasonable, many of its most objectionable features would disappear. The present standard is low, and fish-curing an extensive, important, and, I venture to say, profitable industry, owing partly to its nomadic nature, partly to its being to so great an extent exempt from regulation, has not shared in the benefits which other trades have derived from the Public Health and the Factory Acts.

8. Physical fitness of children and young persons.

During the greater part of the year *Miss Paterson* has given time, intermittently, as other work would permit, to an enquiry which has been of great interest and will, I hope, lead to valuable development, into the results of rejection by certifying surgeons of children and young persons presented for examination in factories.

The cases of rejection that are noted casually in inspecting registers are so few that it is not a matter which forces itself on H.M. Inspectors, but undoubtedly in this requirement of the Factory Act that up to the age of 16 years no person shall be employed in a factory without the certifying surgeon's certificate that he or she is fit for such employment, we have possibilities of most valuable protection during an important period of development, so valuable indeed that, if in practical experience the results are found to realise at all these possibilities, the extension of such protection appears to be most desirable. The question "What becomes of the rejected young persons?" is one which has constantly come into my mind, and this year, with your sanction, I set myself to answer it in some degree by investigating individual cases.

By the co-operation of some certifying surgeons, to whom I desire to acknowledge my great indebtedness, I received on a simple card which I drew up some details regarding each case of rejection, *i.e.*, name, residence, and age of each young person rejected, the factory at which the examination was made, the date of the examination, and the cause of the rejection. With the information at my disposal I was able to follow up these cases by visits at the homes. I chose three centres in all of which a large number of young persons work—Glasgow, Edinburgh and Manchester. In Edinburgh and Manchester the number reported to me was small, but in Glasgow I received reports of 79 rejections from 5 surgeons between April 1st and December 31st; 55 of these came from one surgeon in an eastern district of the city. In the interval between the certifying surgeon's examination and my visit some of the young persons disappeared, as was natural, that is they changed their address and I was unable to trace them. Some difficulty arose also from the fact that a number lived in lodgings, or with a relative with a different surname, and as in many cases one "number" in a street represents 20 to 30 families the task was not an easy one, and I am inclined to attribute my failure in some instances not to a wish to elude me, but rather to the acknowledged difficulty of "finding a needle in a bundle of hay."

The causes of rejection in Glasgow were as in the following table :—

	Cause of Rejection.	No. Rejected.	No. Traced.
1	Under age for full time employment	56	45
2	Weakness or disease of eyes	11	8
3	Disease of skin or ears	6	6
4	Deficient in intelligence	1	—
5	Personation	5	3

I append a detailed list containing such particulars as I was able to ascertain by visits to the homes, factories, &c., and by such other enquiry as I was able to make. The

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length of the table is compensated for probably by the fact that these cases come from a typical manufacturing centre, and represent the results one would be likely to find from a similar enquiry in any other centre.

It has to be remembered that there is no system of half-time employment in Glasgow, but the practice of exempting children from day school attendance in favour of attendance at a night school, makes illegal employment more easy than where day school attendance is required, until such time as a child is fourteen or has an exempting certificate.

It is also important that the order of the Secretary of State allowing a child of thirteen to qualify for exemption by attendance at school does not apply to Scotland, where a labour certificate must be obtained or fourteen years of age reached.

Rejected, being under Age for Full-time Employment.

No.	Age.		Employment.	Result of Enquiry.
	Yrs.	Mths.		
1	13	10	In cotton spinning factory.	Was sent home from the factory when rejected, but was sent for two weeks later. Was not sent to school when out of the factory.
2	13	10	In confectionery factory.	Sent home when rejected, and got employment immediately in a Jew tailor's workshop, running errands and learning sewing machine work. Was 14 when I found her.
3	13	11	In cotton spinning factory.	Sent home when rejected, and remained there until 14th birthday.
4	13	0	Do.	Exempted from school attendance, being nervous and delicate. Kept at home afterwards. Had passed Standard IV.
5	13	6	In heddle (heald) factory.	Had great trouble in finding this girl's place of employment, of which her stepmother would not give address Three months after rejection, found she was still in same factory, but called "errand girl," and her chief work to carry healds to various factories. Two years before she was exempted from day school attendance, owing to her mother's illness, on condition of going to a night school, which she appears to have done intermittently. The reason for the exemption ended with her mother's death.
6	13	11	In cotton factory ...	Sent home when rejected, and stayed there until 14th birthday, when she went again to same factory. Did not go to school, her mother being unwilling to buy school books for so short a time.
7	13	10	In heddle factory ...	Kept on to run errands, and in same factory (*vide* No. 5) until 14th birthday, when she became a heald knitter again. She was a "poor-law" child, boarded out, who according to her sister "never had a chance," owing to the frequency with which the guardians changed her place of residence. The last change made for her was to put her into service at the age of 12. She disliked it, and ran away to her sister, who, three years older, was working in this heddle factory,
8	13	0	In cotton factory ...	Rejected in one and went to another, where she was not examined by the certifying surgeon until she was 14. Had been exempted from day school attendance, and went to night school only from time she was 12.
9	13	10	In jam factory ...	Returned home when rejected, and remained there until 14, when she went back to her former employment.
10	13	1	In cotton factory ...	Employed with certificate of "good attendance" from a schoolmaster, was not dismissed from the factory, but kept on until date of next "labour" examination for which she entered.

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Rejected, being under Age for Full-time Employment—*continued.*

No.	Age.		Employment.	Result of Enquiry.
	Yrs.	Mths.		
11	13	6	In iron foundry ...	Dismissed when rejected. Found employment in running errands for a baker. (Reported to School Board.)
12	13	6	In cotton factory ...	Rejected by the same certifying surgeon twice in cotton factories within two weeks. When dismissed, got employment as a grocer's errand girl, and attended no school.
13	13	4	In bakehouse ...	Dismissed when rejected, and returned to school.
14	13	7	In saw mill ...	This little girl was the second eldest of a family of nine children. The eldest was unfit for work, and had been so for about three years, owing to a serious injury received to her right arm and hand in the factory in which she worked. The father was killed in a forge in April, 1900, and with some money received under the Compensation Act, his widow opened a very small (and so far unsuccessful) shop in her kitchen, where she sold sweets, aerated waters, &c. The School Board exempted the child, who was in the fourth Standard, from day school attendance to help her mother with the shop and the children, on condition that she attended the night school. Before long her mother found that the need for money was greater than for help, and she sent her to the factory, where she was rejected.
15	13	11	In cotton spinning factory.	Dismissed, and stayed at home until 14th birthday.
16	13	10	In jam factory ...	Re-entered in register at factory, but re-examined on 14th birthday, but not dismissed between the two examinations.
17	13	6	In cotton spinning factory.	Dismissed when rejected. Had been exempted from day school attendance to help her grandmother, on condition of attending night school. Was sent at once on exemption to look for employment.
18	13	0	In confectionery factory.	Dismissed when rejected. Had been exempted from day school attendance to help her mother with housework, on condition of attending night school.
19	13	3	In cotton factory ...	Dismissed when rejected, and kept at home. Not sent to school until I interfered.
20	13	1	In cotton factory ...	Dismissed when rejected, and found employment as errand girl for winding factory. Had been exempted from day school attendance to help her mother with housework, on condition of attending night school.
21	13	10	In cotton factory ...	Dismissed when rejected—had been exempted from day school attendance to help her mother when in Standard IV. The mother said she could not afford to buy school books for so short a time—would rather risk being fined. Was found at home trying to get employment in running errands.
22	13	10	In cotton factory ...	Dismissed when rejected, and went to paper mill at once, where he passed the certifying surgeon when 14, and was put to work on the night shift.
23	13	11	In a pottery ...	Dismissed when rejected, and went to tube works, where he "passed" when 14. Had not been to any school for almost a year.
24	13	10	In biscuit factory ...	Dismissed when rejected. Remained at home until 14 and returned to same factory. This child's school attendance had been very irregular, and she had never passed Standard III.

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Rejected, being under Age for Full-time Employment—*continued.*

No.	Age.		Employment.	Result of Enquiry.
	Yrs.	Mths.		
25	13	8	In cotton factory ...	Dismissed when rejected. Was sent to school until 14.
26	13	9	In biscuit factory ...	Dismissed when rejected. Got employment at once in a claspmakers, and passed certifying surgeon when 14.
27	13	10	In wire works ...	Dismissed when rejected. Had left school, being exempted on account of his mother's illness, when 13 years and 4 months old. Had been continuously employed from that time in a silk mill, a saw mill, and then in this wire works.
28	13	1	In cotton factory ...	Dismissed when rejected, and kept at home.
29	12	0	In lithographic factory.	Dismissed when rejected. Went to examination for labour certificate, and was employed when 13
30	12	8	In glass works ...	Dismissed when rejected, and got employment immediately as errand boy with house painter. Had been exempted from day school attendance to help his mother in the house, on condition of attending night school. Had no labour certificate.
31	12	10	In needle factory ...	Was not dismissed when rejected, but kept on and re-examined when 13, having labour certificate.
32	12	9	In cotton factory ...	Dismissed when rejected. Having a labour certificate, she was sent on dismissal as errand girl to a draper. I found that before going to the factory in which she was rejected, she was employed for four months in another textile factory, but never presented to the certifying surgeon.
33	12	5	In rope factory ...	Dismissed when rejected, and was immediately employed in a rope workshop. Had labour certificate.
34	12	8	In underclothing factory.	Dismissed when rejected, and re-employed when 13. Remained at home in interval.
35	12	11	In cotton factory ...	Not dismissed when rejected, but re-examined when 13.
36	12	2	In printing factory	Dismissed when rejected. Got employment in fruiterer's shop, where she works 70 hours a week. Has labour certificate.
37	12	1	In lithographic factory.	Dismissed when rejected. Went to shop to run errands. A clever child, who got labour certificate when just 11. Left school then, and has been in various employments.
38	12	6	In sawmill ...	Dismissed when rejected. Got employment in a workshop. Has labour certificate, and goes to night school.
39	12	0	In saddlery factory	Dismissed when rejected. Got employment as errand boy in a shop. Has a labour certificate.
40	12	9	In confectionery factory.	Dismissed when rejected. Got employment in a lacquering workshop.
41	12	10	In corset factory ...	Dismissed when rejected. Went as errand girl to Jew tailors. Had labour certificate.
42	12	10	In printing factory	Dismissed when rejected, and re-employed at 13, having labour certificate.
43	12	6	In cotton factory ...	Dismissed when rejected. Went to lacquering workshop, then to tambouring workshop.
44	12	8	In underclothing factory.	Dismissed when rejected. Was sent into domestic service, from which she ran away and could not be traced.

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Rejected, being under Age for Full-time Employment—*continued.*

No.	Age.		Employment.	Result of Enquiry.
	Yrs.	Mths.		
45	12	8	In cotton factory ...	Dismissed when rejected. Got employment as errand girl.
46	13	0	In confectionery factory.	Not traced.
47	13	0	Do.	Do.
48	13	0	In lifebuoy factory	Do.
49	13	0	In cotton factory ...	Do.
50	13	0	Do.	Do
51	13	0	In wire works ...	Do.
52	13	0	In biscuit factory...	Do.
53	12	0	In muslin factory...	Do.
54	12	0	In iron foundry ...	Do.
55	12	0	In confectionery factory.	Do.
56	12	0	In cotton factory ...	Do.

Rejected, having Weakness or Disease of Eyes.

No.	Age.		Employment.	Result of Enquiry.
	Yrs.	Mths.		
57	14	0	In iron foundry ...	Not traced.
58	13	0	In cotton factory ...	Do.
59	14	0	In tobacco factory...	Do.
60	14	0	In bookbinding factory.	Sent home when rejected. Remained there a month, when she went to cotton thread factory, and was employed ticketing. Eyes gradually improved under treatment, and she was passed by another certifying surgeon.
61	15	0	In fur-pulling factory.	Sent home when rejected. Had already been rejected in a gut factory, and also in a tobacco factory. Found her living in single room with her mother, where they picked over rags to be sold in old clothes market. Her eyes were getting no treatment at all.
62	14	0	In cotton weaving factory.	Sent home, and a week after went to a lithographic factory, where she was employed in bronzing, which her mother said was good "neither for her eyes or her health."
63	14	0	In cotton factory ...	Rejected for same cause in two factories within six weeks. After second rejection got her eyes treated, and was able after some time to work.
64	14	0	Iron foundry ...	Dismissed when rejected, and got employment in running errands. Eyes remained absolutely neglected and in very bad condition.
65	14	0	In jute factory ...	Dismissed when rejected and kept at home.

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Rejected, having Weakness or Disease of Eyes—*continued.*

No.	Age.	Employment.	Result of Enquiry.
	Yrs. Mths.		
66	14 0	In rubber shoe factory.	Sent home for a week when rejected, then went back to the same factory, but a different department. Had been working four months in the shoe factory using a "composition" his mother thought injurious to his already weak eyes. His present work was not so trying, but his mother said, "You would be sorry to see him."
67	14 0	In cotton factory ...	Dismissed when rejected. Eyes got no treatment, and she was shortly after rejection trying to get other employment.

Rejected, having Diseases of Skin or Ears.

No.	Age.	Employment	Result of Enquiry.
	Yrs. Mths.		
68	14 0	In tobacco factory...	Dismissed when rejected as having tubercular disease of glands of neck. Remained at home. Got no treatment.
69	14 0	In cotton factory ...	Rejected, having disease of ears. Dismissed and kept at home, and cared for.
70	14 0	In jute factory ...	Rejected, having disease of ears. Dismissed and kept at home.
71	14 0	In jam factory ...	Rejected, having skin disease. Given "holiday" for a few days, and then re-employed without re-examination.
72	15 0	Do. ...	Rejected, having contagious skin disease. Not dismissed, but put to work in an "exempted" process, *i.e.*, picking and cleaning fruit, without re-examination.
73	14 0	In cotton spinning factory.	Rejected, having tuberculosis of bones of face. Dismissed and kept at home.

Rejected, being Deficient in Intelligence.

No.	Age.	Employment.	Result of Enquiry.
	Yrs. Mths.		
74	14 0	In box factory ...	Not traced.

Rejected, having presented False Birth Certificate.

No.	Age.	Employment.	Result of Enquiry.
	Yrs. Mths.		
75	12 6	In jam factory ...	Personated her elder sister in order to get away from school. When dismissed, went to school again; is in 3rd standard.
76	13 0	In cotton factory ...	Not traced.
77	13 8	In sawmill ...	Personated boy of 14 without knowledge of his parents. Not strong physically or mentally, and has only reached 2nd standard at school. Dismissed when rejected.
78	14 0	In cotton factory ...	Personated an elder girl. Not traced.
79	15 0	Do. ...	Personated her younger sister, apparently only because she had lost her birth certificate.

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One striking feature brought out in the foregoing tables is the extent to which employers leave to certifying surgeons the duty of examining educational certificates. This is a matter on which I am continually giving instructions, but the practice of leaving to the surgeon the whole responsibility regarding age and education, as well as health, is of such long standing that it is not easily overcome.

"Have you left school?" is apparently the usual question addressed to a child on its arrival at the factory. The answer is, naturally, invariably satisfactory, and further inquiry is left to the surgeon. Thirteen has come to be regarded, in Glasgow at least, as the age for full-time employment under the Factory Acts, and it is not recognised that (according to the law) without the support of a labour certificate a birth certificate showing the possessor to be 13 years old no more justifies full-time employment than does one showing the possessor to be ten.

Owing to this neglect to observe the conditions attaching to employment, the enforcement of the law really bears hardly at the time on the child. She has come to the factory and has just begun to have some facility in doing her work, probably also has just begun to earn a little money, when the surgeon comes, says she is too young to work, and she is dismissed. She learns that she ought to be still at school, but it is difficult, and no doubt to some degree humilating, to her to go back to school work again, when probably in a few weeks or months she will be exempt, independent of her educational attainments. Her mother may be unable to find the money needed for new school books, and I think my table shows that what she does *not* do is go back to school. The refusal to employ her, which would have sent her there quite contentedly before her employment began, thus becomes a real hardship when she has accustomed herself to factory life.

The difficulty is greatly increased by the practice, to which I have already referred, of the Glasgow school authority of exempting children from day school attendance on condition of attending a night school, and the absence of supervision of such scholars. It is true that the child is not exempted from day school attendance in order that she may go to work in a factory or workshop—"to help at home" is the chief reason for such exemptions being given, but experience shows that they are not restricted to that, and a return furnished relating to a group of five night schools in Glasgow, in which 206 girls and boys under 14 were being educated, of whom 89 were exempted in this way, shows that 166 of these were employed outside their homes during the day. Parents who have had their children exempted for special cause do not consider that they are required to make them resume their attendance when the special cause ceases to exist (*vide* case No. 5 in table). In one night school in the east end of Glasgow last year, of 64 children under 14, 36 had been exempted without labour certificates from day school attendance, and 48 of that 64 were employed in factories or in running errands. This shows that without a half-time system the employment and education of children in Glasgow present problems and difficulties of their own, and it is questionable, at least, how far a system which tacitly permits a child to work full-time, and adds to that permission a requirement that he shall go to school from 7.30 to 9.30 every evening, is preferable to a system of recognised half-time.

It is not surprising that the distinctions of employment familiar to officials are not quite clear to the children or their parents, and I think the sending of a child rejected in a factory to seek work in a workshop, although it seems like an attempt to evade the certifying surgeon, is quite as often the result of a failure to recognise this distinction, and of an effort to find what they think is legal employment for the child by sending it where there is no machinery; of course the more divergence there is between the laws regulating education and those regulating employment the more cases there must be of this nature, and a raised age for leaving school would appear now to be the necessary step. The learning acquired by or before the age of eleven, even if that includes passing the fifth standard, is not long retained, and the casual work in going errands, minding a baby, &c., which is almost the only work for which a child is eligible in Glasgow until 13 is reached, is not educational and is very often physically harmful.

It is impossible to doubt that cases of such illegal employment of children must be much more numerous in proportion to the numbers employed in workshops than in factories, owing to the absence of registers in workshops, so that the date of birth of a child or the date of his labour certificate need not actually be ascertained. Registers containing these particulars seem as urgently required in the workshops as in the factories. At present, H.M. Inspector has absolutely no means of knowing exactly the facts of these matters except by enquiry made outside the workshop, and administration is consequently much hampered.

The cases in which certificates were refused because of disease or bodily infirmity were not, it will be observed, so numerous. The table is interesting in showing the nature of the diseases for which young persons were rejected. The difficulty under existing circumstances of making examinations which shall be thorough has often been referred to, the publicity with which they are conducted (in a gatehouse into which all the persons to be examined are sent at once, in an office in which several clerks may be working at the time, in a corner of a busy noisy factory, in some instances recently in a factory yard) puts obstacles in the way. It is not a situation in which a child is likely to say very much, and it will be noted that the causes of rejection here are all such as are obvious. There is no weakness or disease of lungs, heart, &c., reported, and I do not find that surgeons have such facilities given them as a rule as are necessary for such examination.

It is not an invariable rule that the youngest workers in a factory are usually employed at the hardest work, but it is very frequently the case. In the pottery they carry heavy balls of clay and loads of ware, in textile factories they are usually in the dustiest departments, and in many more they have to carry or drag materials for the more mature and skilled workers. No

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one feels more the strain and exhaustion caused by modern conditions of labour than the child or apprentice in the factory, and it becomes increasingly evident that by unsuitable or too severe work in these early days the after life is often shortened or its usefulness and happiness seriously reduced. Several cases in the tables call for special note: No. 61, in which the "home industry" to which the girl reverted was probably as harmful to her as the fur-pulling she left. No. 64, in which selfish parents having found it possible to get employment outside the Factory Acts for their boy pursued the cruel as well as shortsighted policy of taking no further precautions. No. 72, in which a girl with a contagious skin disease, when rejected in the beginning of summer in a jam factory, was simply moved for the remainder of the season into another department—that for picking and cleaning fresh fruit—which is exempt from the operation of the Acts. In all these cases it will be seen no official action was possible to me.

In making this inquiry I have learned much, at once pathetic and useful, of the pressure of circumstances which the child is unable to combat, and which drives it too early from school and into employment. One must admit a certain amount of selfishness, unfortunately, amongst parents, which causes them to make the child a wage earner at the earliest possible moment, but there is in addition the poverty which makes the need for money to be felt so much more keenly than any other, that to satisfy that to some extent, the greater, though less obvious, need of preparation for the working life is set aside. Case No. 14 shows how hard the pressure may be, but I question the kindness of an authority which allows this child, ill-fed, ill-clothed, nervous, and anxious, to work during the day and then demands of her her evenings to be spent in school. Surely this is futile; what good can be expected to come of such "schooling." If she is to work all day let that be all that is required of her.

Both these factors, selfishness and poverty, must be admitted, and in addition a carelessness and indifference on the part of many employers, so that it is only by vigilance and careful administration of the existing laws that the children can have the full benefit of the protection of these laws. In order to secure fuller protection, the extension of certain regulations, now applying to factories only, to laundries and workshops could not but be beneficial, and I beg to recommend that when the opportunity arises the following suggestions should be considered:—

(1.) That the regulations respecting registers and certificates of fitness for children and young persons be extended to laundries and workshops.

(2.) That occupiers shall make suitable arrangement to enable the certifying surgeon to make thorough examinations of the children and young persons employed.

(3.) That in granting a certificate of fitness the certifying surgeon may make it applicable to employment only in one or more departments.

(4.) That enquiry shall be made into the result of the rejection of a child or young person.

9. Pauses in employment: (a) Midday meal and give hour spells.

At present it is legal to employ workers in two shifts of five-hour spells each, with a break only of half-an-hour for the mid-day meal. Whether this half-hour for the meal, which to most industrial workers is the principal one of the day, and which in towns is becoming more and more frequent instead of the old practice of giving an hour, is between two five-hour or slightly shorter spells it is extremely unhealthy, and *Miss Deane's* reports tend to show that it is undermining the health of many dressmakers and milliners in West London. In a sedentary occupation, where ventilation is notoriously bad, these young women have gradually been deprived of the possibility of taking their chief meal under reasonably hygienic conditions, or of having a brief rest and a breath of fresh air in the middle of the day. What all workers who begin at or before 9 a.m. need is a break of one hour at least to be given before 2 p.m.

A great deal of time and thought has been given by *Miss Deane* to this question:—

A question which appears to me to call for attention in Court dressmakers' workshops in the West End of London is that of the meal times and provision for meals for the workers. In few, if any, other trades or locality have the conditions in this respect appeared to me so much in need of improvement. The Act permits of a dinner interval of only half-an-hour, instead of an hour, where work begins at 8.30 a.m. (a very usual hour for commencing in this trade), and it is becoming more and more common to allow only the half-hour break in the middle of the day in these workshops. It is almost impossible for the women, nearly all of whom live in the suburbs and come to their work by rail or omnibus, to get dinner for a sum within their means at restaurants or dining-rooms in that fashionable neighbourhood, and in half-an-hour there is no time to go further afield. Accordingly it is becoming almost a universal custom to supply the meal on the premises of the workshop—of course, at an equivalently lower wage.

The result is bad from the point of view of health. Half-an-hour is not a sufficient break in the middle of the working day. When the time spent in getting from the workroom to the mealroom and back, in washing hands, in waiting the turn to be served, &c., are deducted, 15 or 20 minutes is often all that remains for the actual meal, which is therefore unduly hurried, while no time or opportunity is found for the few minutes in the outer air so important for the health of girls who spend the whole day in one room at a sedentary occupation. Where the dinner hour is really an "hour," the little walk in the fresh air to the restaurant or eating-room

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is invaluable, and even if dinner is taken on the premises sufficient breathing time is left for mental and physical relaxation afterwards. Half-an-hour is too short a time, even where good meals and well arranged dining-rooms are provided on the premises, but where, as frequently happens, the arrangements are bad, the "half-hour" meal time is even more seriously objectionable. I am most disagreeably surprised by the provisions in this respect in many fashionable private dressmakers' workshops. I have observed dark, ill-ventilated passages between workrooms, so narrow that when once the diners are squeezed into their seats it is quite impossible for anyone to pass at all.

Constantly the meal room is an ill-ventilated underground apartment, lit all day by gas, sometimes containing sinks and the cooking-stoves for the family as well as for the workers, and even with the sanitary accommodation opening from it. Naturally where rents are abnormally high, and the large showrooms, the workrooms and the living rooms are required, very little space is left for the workers' meal room, which is often a passage or a room too bad or inconvenient for any other purpose.

Thus day after day during that half-hour when fresher air and more freedom should be attainable, the girls are cooped in a stuffier, darker, worse-ventilated place than the workroom from which they have been released,

Most East End factory girls, with a "real dinner hour" and the greater space at their disposal, are far better off in this respect than the dressmakers and milliners in the fashionable establishments in West London. The latter are a superior and often refined set of young women to whom the rough accommodation made use of by factory girls in small eating houses and public houses would be intolerable. From parents, from doctors, and from the girls themselves I hear constantly of the ill-health caused by a long course of hurried ill-provided meals. "One seems hardly out of the workroom before one is back in it again with all one's dinner in one's throat," was the graphic complaint of one girl when describing the difficulty of the half-hour dinner time. Over and over again it has been necessary to explain to the disappointed women that the complaint of "only half-an-hour for dinner" is one that the Factory Inspector is powerless to remedy under the circumstances.

It certainly appears that women who have to leave their homes at latest at 8 a.m., and whose breakfast therefore is an early one, who do not reach home again till after 8, and often after 10 p.m., half-an-hour is too short a break for the most important meal in the day. The special exception which allows this half-hour to be given at different times to different workers in this class of workshop, makes it often practically impossible for the Factory Inspector to know whether any particular girl really gets even this scanty allowance; and as by this system some workrooms are never empty all day long, the invaluable opportunity for thoroughly airing and freshening them during the dinner time before the long afternoon spell begins is lost.

It is often urged that the only mealroom available on the premises is so small or so inconvenient that dinner can only be provided for all the workers by arranging that they shall take it in turn in "sets." An arrangement which can be carried into effect only at the cost of still further reducing the possibilities of securing fresh air in the workroom, and which hampers the Inspector in administering the Act, is so unsatisfactory that it is a strong argument in favour of the requirement of a full hour for dinner, which permits many of the girls to reach eating rooms outside, and would secure for them a thorough change of atmosphere and attitude.

Miss Vines has had to deal steadily with the same difficulty. She says :—

This year I have dealt with more complaints, generally from dressmakers or milliners, of irregular and insufficient meal hours, than of any other matter. Unfortunately, however, so many of these complaints are not touched by the law.

It is heartbreaking to receive over and over again the complaint, "we are only allowed half-an hour for dinner!" For experience teaches one what to expect on inspection, viz., a period of employment commencing at 8.30 a.m. or 9 a.m., and thus rendering legal the short 30-minutes break for dinner!

The German Shop Hours Act, dated June 30th, 1900, provides that "a mid-day interval of suitable duration . . . . . be allowed during the day, and for such of the staff as take their principal meal off the premises the interval *must be at least an hour and a half.*"

Contrast this with the following extract from a letter lately received *re* meals at a dressmaker's workshop :—

> "The workers are only allowed one hour per day, that is, half-an-hour for dinner and half-an-hour for tea. I don't think any mistress or master, if they had to go out and get their dinners, would like only to have half-an-hour, especially if they had to wait ten minutes or a quarter-of-an-hour; and of course some of them like to go home to dinner, or they have to go without."

I am of opinion that 1½ hours for dinner time in a workshop would be too much. So long a meal hour would tend to lengthen the working hours. But I do think that a minimum meal time of an hour in the middle of the day, would, from every point of view, be most advantageous. It is sometimes forgotten that workers in our West End dressmaking and millinery workshops frequently have half-an-hour to an hour's journey before and after work. A girl often has to be up and dressed and breakfast finished by 7.45 a.m. in order to be at her place of employment by 8.30 a.m. Even under the most favourable conditions, *i.e.*, on nights on which overtime is not worked, it will be 9 o'clock before she is home again.

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Miss Vines suggests as a remedy :—

> The starting of several dressmakers' and milliners' cookery rooms in different parts of the West End. There would have to be several, because the girls would not have time to go far. Each room would be in charge of a capable woman, who would cook the food brought by the worker, either the day or in the morning as she passed on her way to the workshop. Possibly, in time, the system might be self-supporting. At first outside help would be necessary. The plan is being tried for the first time in a quarter of London where a great many tailoresses are engaged, and is, I hear, answering admirably. Success would no doubt depend a great deal on the woman in charge, but allowing that she be capable, I believe this method to be most suited to their needs.

> Reverting to the new German Shop Hours Act, I may remark that, it is impossible not to draw comparisons between the lot of English and German shop assistants. Some time since I received a complaint as to the insufficient meal-time allowed a girl employed partly as milliner and partly as shop assistant. On inspection, I found that only ½ hour was allowed for dinner. I severely cautioned the employer, and told him that, as his was a full 12 hours period of employment, he must give one hour's meal-time before 3 o'clock. Re-inspecting shortly afterwards, I found my instructions had been carried out, and an hour's break given in the middle of the day. The employer, however, complained loudly against the regulation, *because* it made his other worker, who was employed solely as shop assistant, so discontented with the ½ hour dinner-time, which was all he allowed her. He announced his intention of employing the milliner solely as shop assistant as often as possible, in order that she might, being exempt from the Factory and Workshop Act, have only ½ hour for dinner, and so no longer arouse jealous and dissatisfied feelings in her fellow assistant!

Miss Sadler, touching the question of mess-rooms, says :—

> It is difficult to insist upon this point too much where the rents are so high, as in some crowded areas, as to make even a sufficient number of stock rooms prohibitive; yet the evils resulting from the workers having no place for rest during meal-time are too obvious to be ignored. Workers, I am referring now more especially to those employed in the wholesale clothing trades, who often walk to their work from a long distance, and are too far away from their homes to be able to go to and fro for their meals, are forced either to eat their dinner at their work benches, or go out in all weathers to some place in the neighbourhood which will provide them with cheap decently cooked food. Of these there are very few, so that in most cases the worker prefers to stay in the workroom. To enter one of these rooms just before the afternoon spell is about to recommence, shows only too plainly what a crying want this is. There has been no opportunity for changing the air of the room, which is heavily charged with fumes from the cooking stoves, if any, and dinners. The occupants are sitting, reading, or talking in the same cramped and unhealthy positions they have to adopt in their work, or—and here lies the great difficulty from the point of view of inspection—are snatching some extra time for work, with or without the consent of the forewoman.

> Where there is more space, and the employer is thoughtful for those employed, nothing is wanting on this point. The mess-rooms provided meet every requirement. In other cases it seems as if the solution of the difficulty must be left, for the present, to private and philanthropic enterprise, or some such Society as that of the Factory Helpers Union, which has already done so much in this respect for the West End Tailors.

Miss Tracey sends the following observations on the five hours' spell :—

> Many times have I been asked to interfere in the case of work being continued from 8 to 1, and from 2 to 7 without a break, and have had to explain that it is out of my power to do so. The strain on delicate women and girls is doubtless very great, and is rendered in most cases much worse by the fact that, generally, the workers have to walk a long distance to their work, and consequently have only a hasty, and probably ill-cooked, breakfast before they start, which makes a much longer interval between their meals than the legal five hours. The same conditions obtain in the evening when work ceases at 7. In this case certainly the employees are able to leave work earlier than the law demands, but when the long walk home is remembered, I cannot help thinking that they would gain in health and well-being if they worked the full legal period with the regulation half hour break.

> A practical difficulty exists against these short breaks in many trades. In many cases the falling of a crumb on the work would entail serious results, and necessarily all food is prohibited from being brought into the workrooms at all. In a large factory there would be no time to go to the mess-room, for the ten minutes allowed would be occupied in going to and fro, and in many cases no mess-room exists at all.

> It appears, therefore, that the only way to overcome these many difficulties is to reduce the legal spell of work to one of four and a half hours, and to bring all workplaces under the same conditions in this respect as have always obtained in the textile trades.

On this suggestion it may be observed that even if the day consisted of two four and a half hour spells this would make not less than a "nine hours day" of work, a standard which can hardly be considered extravagant for the majority of women and young persons when so many strong men refuse to work longer. A competent and sensible forewoman,

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when questioned by me recently on the need for an extension of overtime demanded by the manufacturers in her trade, declared it was not needed, and wondered why on the contrary an eight hours day had not been secured before now.

Miss Tracey also lays stress again on the value of the weekly half-holiday, where real :— (*b*). *Holidays.*

> Eager demand has often been made to me from workers for a half-holiday that commences at two instead of four. In this demand the workers have my fullest sympathy, and I trust that it will not be long before the Legislature gives this privilege to the working women of our country. Few people who have not seen it can realise what it is to be cooped up in a room, very often filled to its fullest legal capacity, all the week from 8 to 8, with an hour's interval for dinner and half an hour for tea, the only time they can call their own being after 4 o'clock on Saturdays, or other substituted day of the week. As the workers point out to me, and as I well know, it is after 5 o'clock, or even later, before they can begin their "half-holiday," for they may live miles from their work, and there is always the necessary change of dress to be made before anything can be done.
>
> The laundrywomen cannot claim even this small privilege. It is true many of them do not come in early on Monday morning, but the social value of a Saturday afternoon and a Monday morning is very different.

10. *Separate departments in factories and workshops.*

Section 39 of 1895, empowering the Secretary of State by Order to provide for the separate treatment of separate branches or departments in any class of factories or workshops for all or any of the purposes of the Acts, has, in its applications, been the subject of much study, especially by *Miss Deane*. In many cases the apparently coincident power of an occupier to claim that a part of his "factory or workshop may for the purposes of the Act be taken to be a separate factory or workshop," in section 93 of the Act of 1878, has complicated the situation. Especially did this appear to me to be so in connection with the petition made by certain silk manufacturers for permission to work overtime in the subordinate process of making up of certain articles of wearing apparel within the close and curtilage of their textile factories. I reported fully to you on this matter in October, pointing out among other essential features in the case : (*a*) The fact that it was impracticable that the non-textile departments should be entirely shut off from the textile department in these silk factories, and that engines would not be kept running solely for the subordinate process in such factories ; (*b*) that there are other classes of great textile manufacture, with subordinate non-textile processes, with at least equal claims to such an undesirable extension of the power to work overtime ; (*c*) that where the particular non-textile process was carried on in finishing (non-textile) works the power that was undoubtedly held to work overtime was not made use of ; (*d*) that the manufacturers were by no means unanimous in their views of what was desirable in this matter ; (*e*) that the workers, being on the whole well off both as to hours and wages earned, so far as they were in the factory, and not outworkers, were practically unanimous in their opposition to any extension of their hours by legalised overtime. Such being the situation, it seemed to me unfortunate that there should appear to be in the Acts two coincident but unequal methods of attaining the end sought in the petition. I am glad to learn that there is some possibility of amendment of the law in this respect.

Miss Deane has found considerable work in investigating and weighing the claims of occupiers to certificates from her for multiplication of separate departments for overtime. In one instance, while she was engaged in this task, discovery of a flagrant breach of the law by the occupier of a large and well-known west-end workshop (followed by conviction and penalty) gave her good ground for absolutely refusing the certificate. Apart from such circumstances the principle has been never to grant a certificate for subdivision of one branch of work where by the nature of their skill and training the workers could be easily transferred from subdivision to subdivision. The first condition is that the work must be distinct in kind, and done by a different class of worker, with different training, under a different forewoman. *Miss Deane* says : "This rule appears to meet the spirit of the Order, and is, I consider, the only method of securing equally just consideration for a large and a small workshop, and of preventing endless evasions. Otherwise workshops would soon be subdivided into as many departments as an occupier could partition off rooms." A certain number of certificates had already been granted when she entered on her charge, since when she has only added, in all, three such certificates until December 31st.

11. *Convent industries.*

During *Miss Squire's* time in Ireland, in the first half of the year in connection with prolonged legal proceedings, opportunity was taken to visit some convent factories and workshops, especially those doing work similar to that inaugurated and fostered by the

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Congested District Board in remote parts of Ireland. *Miss Squire* visited Kiltimagh, Tuam, Foxford, Gort, and saw lace making, knitting, embroidery, shirtmaking, laundry work, and weaving of linen and flannel. Most of them came within the regulations of the Factory Acts, and although some had not been inspected before and were unaware of the provisions of the Acts, instruction appeared to be only necessary as to technical points, which were well received. A strong influence for good in the direction of method and organisation, from the workers' as well as the manufacturing standpoint, may be attributed, doubtless, to the high standard set by one of the pioneers in this work—I mean the Reverend Mother Superior, of the Foxford Convent, where a successful woollen factory has long been carried on. *Miss Squire* reported last July that "it is quoted in the convents as the example to be followed by the others, and working successfully under the Factory Acts induces the other convents to accept inclusion under the Acts."

I then came to the conclusion that occasional friendly visits of inspection by *Miss Squire*, or another member of this staff, are all that is necessary to secure that the spirit and intentions of the Acts will be fully complied with in every material respect. I have received for the Annual Report the following notes from *Miss Squire* :—

> I visited in Ireland some of the convents where industries are carried on, among them those which have long been recognised as factories within the meaning of the Act, and others which have only recently commenced to work for gain or by way of trade, and had until I called not realised that their doing so brought them under the Act, and made them subject to inspection. In every instance I received a courteous welcome from the Reverend Mother Superior, and found both she and the Sisters in charge of the weaving, lacemaking, laundry, or whatever industry it might be, most anxious to learn the requirements of the Factory Acts, and where its provisions were explained to them and misconceptions cleared away all acknowledged that they were reasonable and right, and in no case was objection raised to the application of the Acts to that particular convent. I was much interested in all I saw and heard; my advice on many points, structural alterations, sanitary arrangements, re-adjustment of periods of employment and meals was asked, and I anticipate no difficulty in securing compliance in all matters regulated by the Factory Acts in those convents hitherto unaccustomed to outside regulation, nor was any objection raised to inspection, only the hope expressed by some of the Reverend Mothers that the Inspector would always be a woman.

12. *Particulars to pieceworkers.*

Under the heading of particulars to piece-workers the principal event of the year was the Order of the Secretary of State for extension of this protection to workers in factories and workshops in which pens are made. This brought to a conclusion the first stage in the long and intricate investigation of the conditions of calculating and paying wages in the Birmingham pen factories by *Miss Squire*, which I began in the end of 1898 and followed with great interest throughout. The next stage extends into the beginning of 1901, the stage, that is, of instructing manufacturers and encouraging them in their increasingly satisfactory endeavour to comply with the requirements of the order, at the same time instructing the workers as to the nature, possibilities and limits of the protection afforded to them in ascertaining the precise amount of wages due to them for a given amount of work. In this stage continual active co-operation between Mr. Redgrave, Mr. Knyvett, Miss Squire, and myself has been most advantageous, and I think we have reason to be well satisfied with the progress made. At my last visits to some of the pen factories I was much struck by the comprehension shown by those employers, I saw, of the spirit of the order, and their express recognition of the fact that Inspectors, workers, and manufacturers alike had a problem to work out together in the most harmonious spirit possible. This problem is how to afford to the worker in detail complete security as to, and definite knowledge of, the nature and amount of the work to be done (whether cutting, piercing, marking, raising, grinding, bending, polishing, &c., &c., of the particular class of pen) by her at a given price. Contrasting with the present stage the conditions found in 1898, when an unusual and striking amount of lack of confidence was apparent on every side, workers asserting that their "lots" were frequently far larger than the nominal amount, employers more or less resentful of investigation, even by an official whose impartiality ought to be complete, it is impossible not to feel that a considerable step forward has been taken by the simple expedient of requiring and enforcing a precisely defined contract between "master and servant" in this intricate piece-work industry. The "moral" effect of *Miss Squire's* round of visits, after the Order had been fully explained, for the simple purpose of selecting "lots" of pens to be counted out in the presence of the worker and the representative of the employer on the employer himself, has been most encouraging. Reporting in March, 1901, on the twelve pen factories of the kingdom, "all of which are situated in Birmingham." *Miss Squire* says :—

> The occupiers have set to work to supply the required particulars in a highly commendable manner. This is the more remarkable when the opposition which was expressed to the

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suggestion by some of them when it was first made is called to mind. Some alteration in details or a more complete application of the system I have found to be needed in the works—no two of which have adopted precisely the same method—in every case my instructions and suggestions have been well received . . . . . no opposition has been made to my testing the "lots"—in some factories I was even requested to do so—in all cases the firm's scales and the services of their weigher were placed at my disposal . . . . I learn that the employees have been much impressed by the fact that "lots" have been chosen and tested by the Inspector . . . . . it was the common opinion among the women that the employers would never allow an Inspector to do that. The fiction that a "lot" is 100 gross has almost entirely disappeared, the actual number of real gross which the lot contains is now clearly stated in every factory.

Miss Squire quotes instances of variations from the stated amount, and on the whole they appear so far to be as often in favour of the worker as against her. At one of the factories with the highest reputation for excellence in quality of pens *Miss Squire* found as follows :—

Process.	Stated No. of Gross.	Actual No. of Gross.	Remarks.
Piercing	122	112	Worker paid for 122.
Slitting	113	113 & 4 doz.	
Marking	114	115½	

In the factory where there was most discontent amongst workers she found :—

Process.	Stated No. of Gross.	Actual No. of Gross.	
Grinding ...	130	134	
Slitting	130	131	

Miss Squire continues :—

The evidence points very strongly to a far greater care being exercised than formerly by the manufacturer in weighing out the work in the first instance, and balancing it at the various stages so as to ensure a certain number of blanks in a lot. . . . . The particulars of *work* supplied to the worker include in every case a statement of the number of real gross she is required to operate upon ; in most cases the weight of the work is also given, and in some a standard weight is added. . . . . The particulars of *wages* are given on a placard alone in seven factories, on the work-book alone in three factories, and on both placard and book in one factory. I find two distinct methods of paying wages in the pen trade :—

1. The wage quoted for a lot is paid to the worker whether the number of pens in the "lot" has decreased in the previous processes or not, *e.g.*, a "lot" starts at 130 gross from the "cutter," but by time it reaches the "grinder" it has fallen to 120 gross ; the grinder, however, received the full amount of wage quoted for 130 gross.

2. The wage quoted for a "lot" decreases in proportion as the "lot" decreases, *e.g.*, the lot starts at 130 gross from the cutter, it reaches the grinder as 120 gross, the grinder receives $\frac{1}{10}$th less than the quoted wage—that is, she is paid for 120 gross only.

The particulars of work required in these two classes of payment differ ; in the first it is sufficient if the number of pens in the "lot" is stated *once for all* at the top of the work note ; in the second the number of gross must be stated afresh for each process in order to show the diminution in quantity, and therefore of wage.

The accuracy of the particulars of work becomes of far greater importance in the second of the two classes.

It is no easy matter to compute the amount of her wage for a worker employed on the latter system of payment, the majority of the employees seem to arrive at a fairly correct estimate of the wage due to them, but are unable to explain how they do it ; many, however, are completely puzzled, and can only tell that their wage will be something less than the price quoted—they do not know how to attack such a problem as the following :—

If 130 gross is 1*s.* 9*d.*, how much is 118 gross ?

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One employer, realising this, has drawn up a simple calculation table for all his wages, and is having it duplicated and posted in each room. He has also drawn up a calculation table of standard weights, which is to be published for the information of the workers. I hope to be able to persuade other employers to follow this example.

The particulars have not been given for a sufficiently long time at present for it to be possible to judge how far they are of service to the workers, or which of the many methods in use is the most satisfactory in practice. It will be of great interest to follow up this matter closely, and with the limited number of factories it will be possible to secure equal compliance in all, and to discover what degree of accuracy in the number of blanks or pens delivered to the worker is attainable, and is *practicable* in the manufacture especially of the cheaper class of pen.

Further work was done in 1900, and especially by *Miss Paterson*, in the way of enforcing observance of the Order for Particulars in Wholesale Tailoring. A large number of manufacturers of men's and youths' fustian clothing (as well as worsted and woollen clothing) made long delay, and urged special difficulties in complying with the Order, in the Hebden Bridge and Todmorden district. *Miss Paterson* and H.M. Inspector, Mr. Garvie, spent a great deal of time in going into the alleged difficulties, and these occupiers were given repeated periods of probation. In spite of much patience there was a stubborn adherence to defective or too elementary methods (*e.g.*, rough chalk marks on garments), use of symbols, and even failure to give particulars at all. *Miss Paterson* observed :—

The variety of garments, styles, &c., is not a very large one in Hebden Bridge, but lists vary very much . . . in names and directions. This makes it difficult for the workers going from one factory to another to know what they will receive for a garment, even if it is actually the same as they have made elsewhere. It also makes it difficult for them to compare prices and accounts for the objection felt by the employers to adopting a uniform method. In the absence of any uniform rates of pay in the district, the importance of careful observance of the particular clause is the more apparent. In several factories I found being made a class of trousers, men's sizes, paid at the list price for youths. This class did not appear on any placard.

A caution on that very point was given in July, but in the end of the year it was apparent that if the Order was ever to be enforced, prosecution was necessary. Proceedings were accordingly taken (early in 1901) in a number of typical cases, with success. It was clear that the meaning of the Order must have been apparent throughout in a district so largely textile, where the Particulars Section has been so long applied to textile processes. Following the convictions, the fustian manufacturers asked for a conference with H.M. Inspectors, which was arranged, and now, I hope, an effort is being made by them to comply.

Further progress was made with investigation of the need for application of the Particulars Section in various branches of clothing industries, especially shirts (other than linen), baby-linen, corset making, and underclothing. There is a manifest advantage in completing this enquiry, in order, if possible, to include the various branches in one application of the section. To my regret, however, the pressure of other matters on our small resources has made completion this year impossible.

While *Miss Sadler* was in Glasgow with *Miss Paterson* the ground there was covered, and *Miss Paterson* sent me a joint report as follows :—

We have visited, together or separately, 22 factories and workshops in Glasgow in which the industry of shirt making is carried on, employing in all 1,500 to 1,600 persons, and have taken the opinion of employers, managers, and workers on the subject. We have found shirt making very frequently combined with underclothing making, with baby-linen, and, in several instances, with corset making.

It has been acknowledged in all cases by employers or their representatives that it is desirable that workers should know what they will receive for the work they are given to do, and the chief ground of objection to the extension of the clause is that the workers *do* know without it, that is to say, that they may get the information verbally from the person who gives them the work. Leaving aside the considerations (1) that workers do not always care to ask for the information ; (2) that the giver-out may, in the midst of many duties and enquiries, make a mistake or may feel disinclined to give it, it is clear that this is a haphazard method by which no employer could be bound.

While discussing the matter with employers we have not found any who absolutely opposed the proposal to include this trade in the scope of the section, although some have thought it unnecessary because of the reasons stated above. One has objected on the ground that a price list would lead to his prices being known in other factories ; but we have pointed out that there is nothing in the law now to prevent a worker giving information to any one about her wages. There is a curious misconception in some minds of the meaning of the term "trade secret."

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The objection is urged that great labour would be entailed, but a price list would merely be a copy of information already necessarily in the factory, and a ticket to the worker may, to save labour, have many of the particulars printed on it.

This constitutes, practically, the employers' case against the extension, for the hastily-spoken complaints of "over-legislation" cannot be, and generally are not intended to be, taken seriously. From the workers there have been no objections, and their evidence has shown that prices vary in different factories for practically the same article; also that the division of work in shirt and underclothing-making varies also; for instance, in one factory a woollen shirt passes through the hands of 11 pieceworkers, in another an exactly similar shirt passes through the hands of eight only, and in smaller places one worker will frequently do all the machine work on the garment. Consequently, the worker changing her factory, although not her trade, finds herself at a great loss as to her probable wage. It is, they say, not unusual also for prices to be suddenly changed without intimation, and a worker may find that during one week she has been making shirts at a certain price, and during the next the same shirt at another price. We have found also that there is great reluctance on the part of the workers generally to asking the price of work, and where they "know" what they are to receive, it is much more frequently from a fellow worker than from a foreman or giver-out that they get the information. All workers with whom we discussed the question were agreed, even while having no personal complaint to make, that they ought to have means of knowing exactly what price they would receive for their work, and also, what is very important and which they do not now possess, the means such as particulars of work and prices would give them, of supporting their claim to the known price.

At present the striking feature was the want of system, resulting in different treatment of individual workers in the same factory, and that, without there being any reason to suspect any intention to cheat. For instance, in one large shirt factory where it was stated that the system was to enter the price in the worker's pay book before she began the work, investigation showed that amongst the machinists some had the entry made when the work was given out, some while it was in progress, and still some when it was completed. There was no doubt that system was intended to be as above, but the result was not satisfactory. The seam-fellers stated that they had the entries made when the work was finished, the sleeve fellers before it was begun, the hemmers when it was finished.

In the underclothing industry the conditions are much the same, and the larger number of varieties of garment and styles makes the need for particulars even greater than in the shirt trade. All processes paid by the piece should be included—that is, finishing, washing, ironing, &c., should not be omitted.

In recommending the extension of the Particulars Section to these trades, we desire to point out the difficulties likely to arise with regard to the definition of shirts. If an order is issued applying to the shirt and collar trade, based on the Irish industry, there may be difficulty in applying it to the trade in woollen shirts, which are made generally without collars, and which might be classed as underclothing. Similarly, the definition of underclothing presents difficulties certain to arise soon in administration. The term "underclothing factory" is generally applied to one in which ladies' white cotton or cambric garments are made—but it appears to us no less desirable that those in which underskirts, whether of cotton, silk, or other material, are made should be included. We have received evidence that the order would be welcomed by the corset makers. It is also very probable that there will be objections to the inclusion of nightdresses and pyjamas as "underclothing," and we would submit, therefore, that the order should be so framed as to include naturally all garments which it is customary to make wholesale, and which are all made in the same class of factory and workshop, and by the same class of workers.

We have no doubt that indirectly the extension of Section 40 to these trades would lead to more satisfactory observance of the Truck Acts, and give the workers a security with regard to their wages which at present they by no means invariably enjoy.

13. *Truck.*

From *Miss Deane* I have received further notes on the work in Ireland for the repression of Truck amongst out workers already touched on above in section 3. *Miss Deane* says:—

The first months of the year were engaged in the necessary concluding visits to the north-west of Ireland with Miss Squire in connection with the prosecutions under the Truck Act in that district, the opportunity being taken on these occasions to visit as many as possible of the "agents" and outworkers in the outlying district in Donegal and Inishowen and verbally explain to them the object and the provisions of the Truck Acts. The frequent evasions and infringement of these Acts in some parts of Ireland certainly encourage the shiftlessness and the poverty which are so deplorable, and form a real obstacle to the efforts of those public spirited persons who are endeavouring to ameliorate the lot of the peasantry in those parts. Self respect and proper independence are almost impossible in the circumstances and under the conditions produced by a wide-spread disregard of the right of the worker to the free control of her own earnings unhampered by any condition as to where and how they should be spent. Special care was also directed to bringing prominently before the "head firms" in the large manufacturing towns in the north and west of Ireland, the grave responsibility which they had incurred in this matter. It was very clearly proved that too often the ignorant little "agents" for such firms, struggling with the difficulties of organisation and lack of proper carriage facilities were obviously unable to do the work required of them on the profits of the "commission" alone, and "the shop" and "truck system" naturally followed. The head

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firms are in constant touch with these agents, many of whom are visited by partners or managers in the firm in the summer time, and it is impossible to hold the latter free from blame for conditions which were patent to all who chose to take an interest in the subject. It is a matter for incessant self-congratulations by certain of these firms that they have "opened up" and "given employment" to thousands of these peasant women in distant parts of the country, but where this process is carried out unaccompanied by a sense of responsibility, the result is but too often marred by the evils which invariably attend the irresponsible employment of cheap labour.

Miss Squire reports on her successful work in Cornwall and Somerset, as follows:—

The special enquiries respecting payments of wages to outworkers otherwise than in coin, upon which I was engaged for some time in Somersetshire and in Cornwall, were followed by a number of prosecutions of employers for breaches of the Truck Act, 1831. In every case taken a conviction was obtained, and it is hoped a lesson has been learnt by the tradesmen of the West of England that the home-worker has the same right as every other wage-earner to handle the whole of her wages in cash, and to take them home or spend them without impediment in the open market.

Only by a daily intercourse with cottagers in remote villages and the fishing folk of little seaside towns, and by thus becoming intimately acquainted with all the life and customs of the home-worker, can the real nature of their business transactions be fathomed. The information so obtained and pieced together disclosed a state of such widespread defiance of the law and contempt of the rights of the wage-earner, as it seems incredible could exist in England at the present time. In Cornwall the only employment women can obtain to do in their cottages, in order to earn a little for themselves, is knitting of yachtsmen's guernseys—work in which they excel—for which the nominal wage is 2*s*. 3*d*. to 3*s*. 6*d*. each, but the payment is not in money but in drapery goods from the employer's shop. No other payment can be had, goods must be taken at whatever price and of whatever quality the employer chooses to supply, the goods being generally ordered of the traveller who visits the villages and scattered hamlets to give out yarn and collect the guernseys. Many were the tales of hardship told in the beautifully clean and neat Cornish cottages. Even women with large families sometimes need other things than drapery, and widows and single women who wanted food or coal, or money for rent, had to sell to neighbours, often at a loss, goods given as wages for their work, unless they were fortunate enough to pay down the money value of the work and use the guernsey as a "token" at the shop for goods to that amount. I, on one occasion, found a single woman (a cripple) in great distress because, being in need of money for her rent and having a good sum owing to her for work done, she had sought among her neighbours for someone willing to buy from her goods from her employer's shop, and had been commissioned to order a coat, this she had done. The coat was due by the carrier that evening, but the man had sent her word that he had changed his mind—the wages of many months were represented by a man's coat for which she had no use. In Somerset it was the kid glove makers who were being paid in goods from the grocery shop of an agent, who fetches the work from the factories, distributed it to the cottagers in the country districts, collects and returns it again to the factories. The making of kid gloves is almost entirely a home industry, and from every cottage in the Somersetshire villages comes the sound of the sewing machine, the children between school hours help with the "finishing," this home industry is specially exempted from all the provisions of the Factory Act, but happily enjoys the protection of the Truck Acts. Gradually the truck system of payment which was almost universal in this industry is being driven out, and probably the convictions obtained this autumn against one of the agents or bagwoman has been its death-blow.

Miss Paterson succeeded in obtaining some important revisions of contracts throughout a whole textile district in Scotland, where the employers associated themselves in the endeavour to arrive at a general form for the contract:—

Some interesting cases have arisen under the Truck Acts during the year; proceedings have been taken against two firms for infringements of the Acts, resulting in one instance in a conviction, in the other in dismissal before the case was heard—on the point raised by the solicitor appearing in defence and supported by the sheriff, that illegal payment of wages to several persons on the same day constituted one offence only.

The other case was keenly contested also, both on points of law and of evidence, and the witnesses were subjected to a very severe cross-examination, which, however quite failed to shake them, and the case, the hearing of which occupied almost five hours, resulted in a conviction.

During a large part of the year I have been in communication with a group of textile manufacturers, through their solicitor, regarding their contracts. There is undoubtedly great advantage, to workers at least, when in a town with a staple industry, as in this case, the regulations are the same for all factories, and a change of employment does not involve a probable conformity to an entirely new set of circumstances. As the year closes it seems as if this long correspondence is to result in the replacing of a set of contracts of the most primitive and unreasonable type by a general contract which is at least clear in its wording and not below the average standard of such contracts in reasonableness.

An interesting case, affected, certainly, by the spirit if not by the letter of the Truck Acts, was one in which a reduction of rate of wages per hour for an entire week followed each occasion of unpunctuality. The system was peculiarly confusing and incomprehensible to the

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workers, as the notice stated that in case of unpunctuality the rate of pay per hour would be calculated according to a working week, two hours longer than the usual week. This, except to a few highly paid workmen, made a fractional reduction only per hour—the girl paid nominally twopence an hour found the rate had become something like a penny and seven-eighths per hour, although not exactly that. I think, however, it is safe to say that in nine cases out of ten it would be impossible for her to know whether she was receiving her correct wage or not.

Another interesting case was one in which one employer retained part of the wage of one of his workers pending the receipt of an apology from her father for some abusive language used to the employer. It was happily possible to put this matter right by persuasion and without pressing any legal point.

Miss Squire sends the following note on the Act of 1896 :—

It has been so abundantly proved that punctuality and discipline among employés in factories is not secured by fining, but by good management, that further instances would almost seem superfluous, yet the following may be worth quoting.

In one of the largest, if not the largest, laundry in the kingdom, consisting of many separate buildings, yet all under one manager, I found innumerable fines imposed for unpunctuality, and for every conceivable neglect or default; the conditions of the Truck Acts, 1896, were in time fully, although reluctantly fulfilled, and a mighty register with many pages of entries for every week was produced for inspection, the manager was firmly convinced that by no other means than rigorous fining could the women be prevented from coming late to work or defying all authority within the workrooms. When next I visited the laundry the management had changed. I found fine lists and register had disappeared, investigation proved that all fining had been abolished, the new manager told me he "did not believe in fining," his employés knew their employment depended on punctuality and good behaviour, and he had not to complain of the want of either.

I have, &c.,

ADELAIDE M. ANDERSON.

H.M. Chief Inspector of Factories.

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TEXTILE PARTICULARS.

REPORT OF THE EXAMINER OF PARTICULARS.

SIR,

I HAVE the honour of presenting the ninth Annual Report in connection with the Particulars Section, and I am pleased to be able to say that it continues to grow more popular year by year, not only amongst employées, but employers generally, so much so that I have very little of a contentious nature to report.

We have in England	4,987
in Wales and Monmouth	211
in Scotland	750
in Ireland	279
Or a total of	6,227

textile factories in the United Kingdom.

We have also in England	784
in Wales and Monmouth	133
in Scotland	125
in Ireland	41
Or a total of	1,083

textile workshops in which piece-work rates are partially or wholly paid. Or a grand total of 7,310 factories and workshops that come under our supervision so far as the particulars of work is concerned.

Of the 4,987 textile factories in England—

2,380	are engaged	in the cotton industry,
1,331	„	in the worsted and woollen industry,
62	„	in flax and jute industry,
252	„	in silk industry,
386	„	in lace industry,
286	„	in hosiery industry,

and the remaining 290 are of a miscellaneous character.

Of the 784 textile workshops in England—

473	are engaged	in the hosiery trade	
54	„	„	silk „

and the remaining 257 are of a miscellaneous character.

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The 211 textile factories and 133 workshops in Wales and Monmouth are all engaged in woollen, except some little cotton that may be mixed with the wool chiefly in the hosiery department.

Of the 725 textile factories in Scotland—

256 are engaged in worsted and woollen,
243 „ in flax, jute, hemp, and tow,
92 „ in cotton,
56 „ in hosiery,

and the remaining 78 are of a miscellaneous character.

Of the 125 textile workshops in Scotland—

68 are engaged in hosiery,
18 „ in cotton,
23 „ in wool,

and the remaining 16 are of a miscellaneous character.

Of the 279 textile factories in Ireland—

172 are engaged in flax, jute, hemp, and tow,
93 „ in woollen,

and the remaining 14 are of a miscellaneous character.

Of the 41 textile workshops in Ireland—

29 are engaged in hosiery,

and the remaining 12 are of a miscellaneous character.

During the past year 4,787 visits have been made to textile factories, and some 1,619 to textile workshops, out of which we have only had occasion to lay 20 informations, against 30 in 1899, and 47 in 1898; we secured a conviction in each case. The average penalty has considerably decreased, it being 7*s.* 9·6*d.* in 1900, compared with 12*s.* 6·8*d.* in 1899, and 18*s.* 3·5*d.* in 1898. This decrease I attribute to the fact that the offences during the past year were not of so serious a character as those of the previous years, being chiefly of omission, not of commission, and mostly arising from the carelessness of the persons whose duty it was to fill in the information and supply it to the workpeople.

The original object of the Particulars clause was to secure for the workpeople full and correct particulars, including price, with their work; and this I think it may be said to have fully achieved, especially so far as the textile industries are concerned. Previous to the passing of the section, it was very common in certain parts of Lancashire for 36's and even 38's twist to be delivered to the winders and described as 32's, and paid for as such; hence the winders (females) in such cases were performing from 12½ to 18¾ per cent. more work than they were paid for. This, to some extent, applied to almost every branch of the textile trade, but not in the same degree as in the case of the winders, except it may be said that the weavers in a certain district of Yorkshire were almost as badly off. Now we rarely find the particulars of the work deliberately omitted or supplied incorrectly.

I have, &c.,

T. Birtwistle,

H. M. Examiner of Particulars.

H.M. Chief Inspector of Factories.

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Summary of Prosecutions in connection with the Particulars Section, 1900.

Defendant. (1)	Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
I. Prosecutions under the Particulars Section: Textile Factories and Workshops (taken by the Examiner of Particulars).				£ s. d.	£ s. d.
Hollingreave Manufacturing Co., Ltd., Clifton Mills, Burnley, *Cotton Manufacturers. F.*	Burnley (Borough), April 25, 1900.	Failure to supply sufficient or correct particulars, or to supply them in legal manner.	2	2 0 0	1 18 6
J. H. Birtwistle & Co., Ltd., Grane Road Mills, Haslingden, *Cotton Manufacturers. F.*	Haslingden (County), April 30, 1900.	Do. do.	2	0 10 0	1 7 6
John Southworth & Sons, Brooks Mill, Clitheroe, *Cotton Manufacturers. F.*	Clitheroe (Borough), May 3, 1900.	Do. do.	2	1 0 0	1 13 6
Nichol & Crowther, Ltd., St. Helen's Mill, Almondbury, Huddersfield, *Woollen and Worsted Manufacturers. F.*	Huddersfield (Borough), May 7, 1900.	Do. do.	3	0 15 0	1 14 6
Thomas Haworth, Warth Mill, Waterfoot, *Cotton Manufacturer. F.*	Rawtenstall (Borough), July 28, 1900.	Do. do.	3	1 10 0	2 6 6
William Crabtree & Co., Woodside Mills, Haley Hill, Halifax, *Worsted Manufacturers. F.*	Halifax (Borough), October 26, 1900.	Do. do.	3	0 7 6	Costs not allowed.
John Brown, (trading as J. & A. Brown), Old Mills, Yeadon, *Woollen Manufacturers. F.*	Otley (County), November 2, 1900.	Do. do.	3	1 10 0	2 2 6
James Arnold, Park Green, Macclesfield, *Silk Manufacturer. F.*	Macclesfield (Borough), November 26, 1900.	Do. do.	2	0 3 6	1 8 0
		Total	20	7 16 0	12 9 6
		Total, 1899	*30*	*18 17 0*	*18 11 6*

Textile Factories in which Payment is made wholly or partly by Piece.

Counties. (1)	Cotton. Spinning only. (2)	Cotton. Spinning and Weaving. (3)	Cotton. Weaving only. (4)	Wool and Worsted. Spinning only. (5)	Wool and Worsted. Spinning and Weaving. (6)	Wool and Worsted. Weaving only. (7)	Flax, Jute, Hemp & Tow. Spinning only. (8)	Flax, Jute, Hemp & Tow. Spinning and Weaving. (9)	Flax, Jute, Hemp & Tow. Weaving only. (10)	Silk. (11)	Lace. (12)	Hosiery. (13)	Elastic Web. (14)	Cocoanut Fibre. (15)	Small Ware. (16)	Hair. (17)	Carpet. (18)	Miscellaneous. (19)	Total. (20)
1. Anglesey ..	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	3
2. Bedford	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3. Berkshire ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4. Brecknock ..	—	—	—	—	7	—	—	—	—	—	—	1	—	—	—	—	—	1	9
5. Buckingham ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6. Cambridge ..	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	2
7. Cardigan ..	—	—	—	—	36	3	—	—	—	—	—	1	—	—	—	—	—	—	40
8. Carmarthen ..	—	—	—	—	54	1	—	—	—	—	—	1	—	—	—	—	—	—	56
9. Carnarvon ..	—	—	—	—	10	1	—	—	—	—	—	1	—	—	—	—	—	—	12
10. Chester	81	28	8	1	1	1	—	—	—	70	—	2	—	—	3	—	—	4	199
11. Cornwall ..	—	—	—	—	1	—	—	—	—	—	—	1	—	—	1	—	—	—	3
12. Cumberland ..	2	—	1	3	5	3	1	1	—	—	—	1	—	—	—	—	—	—	17
13. Denbigh	—	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	6
14. Derby	33	6	4	1	1	—	—	—	—	8	149	12	7	—	18	—	—	12	251
15. Devon	—	—	—	—	9	—	—	—	—	—	2	2	—	—	—	—	—	—	13
16. Dorset	—	—	—	—	—	—	4	5	—	1	—	—	—	—	—	—	—	8	18
17. Durham	—	—	—	—	2	—	—	—	—	—	—	2	—	—	—	—	—	—	4
18. Essex .. .	—	1	—	—	—	—	—	1	—	12	—	—	—	3	—	—	—	1	18
19. Flint	—	—	—	—	1	—	—	—	—	—	—	1	—	—	—	—	—	2	4
20. Glamorgan ..	—	—	—	—	19	—	—	—	—	—	—	1	—	—	—	—	—	1	21
21. Gloucester ..	—	1	—	—	17	—	—	3	—	3	—	1	2	—	—	—	—	2	29
22. Hampshire ..	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	2

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Textile Factories in which Payment is made wholly or partly by Piece—*continued.*

Counties.	Cotton.			Wool and Worsted.			Flax, Jute, Hemp & Tow.			Silk.	Lace.	Hosiery.	Elastic Web.	Cocoanut Fibre.	Small Ware.	Hair.	Carpet.	Miscellaneous.	Total.
	Spinning only.	Spinning and Weaving.	Weaving only.	Spinning only.	Spinning and Weaving.	Weaving only.	Spinning only.	Spinning and Weaving.	Weaving only.										
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
23. Hertford ..	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	2
24. Hereford ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
25. Huntingdon ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	..	—
26. Kent	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
27. Lancaster ..	631	324	945	5	51	15	—	5	—	18	—	6	—	—	34	5	3	40	2082
28. Leicester ..	3	—	—	12	—	—	—	—	—	2	—	173	14	—	2	—	—	4	210
29. Lincoln	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
30. London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
31. Merioneth ..	—	—	—	—	12	—	—	—	—	—	—	—	—	—	—	—	—	—	12
32. Middlesex ...	—	1	1	—	—	4	—	—	—	3	—	—	—	3	2	4	—	14	32
33. Monmouth ..	—	—	—	—	6	—	—	—	—	—	—	1	—	—	—	—	—	—	7
34. Montgomery ..	—	—	—	—	20	—	—	—	—	—	—	1	—	—	—	—	—	—	21
35. Norfolk	—	—	—	—	1	—	—	—	—	5	—	3	—	1	—	—	—	3	13
36. Northampton ..	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1
37. Northumberland.	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	2
38. Nottingham ..	17	—	—	—	—	—	—	—	—	4	230	80	—	—	—	—	—	—	331
39. Oxford	—	—	—	—	9	2	—	—	—	—	—	—	—	—	—	—	—	—	11
40. Pembroke ..	—	—	—	—	18	—	—	—	—	—	—	—	—	—	—	—	—	—	18
41. Radnor	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	2
42. Rutland	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
43. Shropshire ..	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	1	—	4
44. Somerset ..	—	—	—	1	12	—	1	6	—	6	4	—	4	—	—	1	—	—	35
45. Stafford	2	—	—	—	—	—	—	—	—	47	—	—	—	—	9	—	—	—	58
46. Suffolk	—	—	—	—	—	—	—	1	—	13	—	1	—	7	—	4	—	5	31
47. Surrey	—	—	—	—	—	1	—	—	—	—	—	—	—	3	—	1	—	1	6
48. Sussex	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
49. Warwick ..	—	—	2	1	—	1	—	—	—	20	—	—	7	—	—	—	—	8	39
50. Westmorland ..	—	—	—	2	3	4	—	—	—	—	—	—	—	—	—	—	—	1	10
51. Wiltshire ..	—	—	—	—	17	6	—	—	—	3	—	—	—	2	—	—	1	1	30
52. Worcester ..	—	—	—	8	—	—	—	—	—	—	1	—	—	—	—	1	23	3	36
53. York, E. Riding 54. „ N. „ 55. „ W. „	156	11	122	259	575	393	14	2	16	34	—	2	—	1	—	—	12	—	1497
ENGLAND & WALES	925	372	1,083	296	899	535	20	24	18	252	386	294	35	22	69	16	40	112	5,198
56. Aberdeen ..	1	—	—	3	17	2	—	2	1	—	—	4	—	—	—	—	1	2	33
57. Argyll	—	—	—	—	7	—	—	—	—	—	—	—	—	—	—	—	—	2	9
58. Ayr	1	1	11	3	21	2	5	—	—	—	22	16	—	—	—	1	6	6	95
59. Banff	—	—	—	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	7
60. Berwick ..	—	—	—	1	3	—	—	—	—	—	—	—	—	—	—	—	—	—	4
61. Bute	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	1	3
62. Caithness ..	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	2
63. Clackmannan ..	—	—	—	3	5	9	—	—	—	—	—	—	—	—	—	—	—	—	22
64. Dumbarton ..	—	—	4	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	5
65. Dumfries ..	—	—	1	1	7	3	—	—	—	—	—	—	—	—	—	—	—	2	14
66. Edinburgh ..	1	—	—	—	3	—	—	1	—	—	—	1	—	—	—	—	3	1	10
67. Elgin	—	—	—	2	5	1	—	—	—	—	—	—	—	—	—	—	—	1	9

Digitized by Google

Textile Factories in which Payment is made wholly or partly by Piece—*continued.*

Counties.	Cotton.			Wool and Worsted.			Flax, Jute, Hemp & Tow.			Silk.	Lace.	Hosiery.	Elastic Web.	Coconut Fibre.	Small Ware.	Hair.	Carpet.	Miscellaneous.	Total.
	Spinning only.	Spinning and Weaving.	Weaving only.	Spinning only.	Spinning and Weaving.	Weaving only.	Spinning only.	Spinning and Weaving.	Weaving only.										
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20).
68. Fife	—	—	—	—	1	—	24	—	50	—	—	—	—	—	—	—	1	3	79
69. Forfar	—	—	—	—	—	—	42	30	57	—	—	—	—	—	—	—	—	2	131
70. Haddington ..	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
71. Inverness ..	—	—	—	2	5	—	—	—	—	—	—	—	—	—	—	—	—	—	7
72. Kincardine ..	—	—	1	—	4	—	5	—	—	—	—	—	—	—	—	—	—	—	10
73. Kinross	—	—	—	1	—	1	—	—	1	—	—	—	—	—	—	—	—	—	3
74. Kirkcudbright	—	—	—	—	5	—	—	—	—	—	—	4	—	—	—	—	—	—	9
75. Lanark	4	1	45	2	1	13	—	3	1	9	3	10	—	—	—	3	5	13	113
76. Linlithgow ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
77. Nairn	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
78. Orkney and Shetland.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
79. Peebles	—	—	—	3	7	2	—	—	—	—	—	—	—	—	—	—	—	—	12
80. Perth	1	1	—	—	9	4	8	4	5	—	—	—	—	—	—	—	—	—	32
81. Renfrew.. ..	9	—	9	1	1	6	2	—	2	1	—	2	—	—	—	—	6	7	46
82. Ross and Cromarty.	—	—	—	1	4	—	—	—	—	—	—	—	—	—	—	—	—	—	5
83. Roxburgh ..	—	—	—	3	11	10	—	—	—	—	—	14	—	—	—	—	—	—	38
84. Selkirk	—	—	—	10	15	9	—	—	—	—	—	4	—	—	—	—	—	—	38
85. Stirling	—	—	1	1	4	—	—	—	—	—	—	1	—	—	—	—	2	—	9
86. Sutherland ..	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	2
87. Wigtown ..	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	2
SCOTLAND	17	3	72	42	149	65	86	40	117	10	25	56	—	—	—	4	24	40	750
88. Antrim	1	—	—	1	2	—	30	11	43	—	—	1	—	—	—	—	—	3	92
89. Armagh ..	—	—	—	—	—	—	3	1	25	—	—	—	—	—	—	—	—	—	29
90. Carlow	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	3
91. Cavan	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
92. Clare	—	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	6
93. Cork	—	—	—	—	19	—	—	1	—	—	—	—	—	—	—	—	—	—	20
94. Donegal	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2
95. Down	—	—	—	—	—	—	13	2	14	—	—	—	—	—	—	—	—	—	29
96. Dublin	—	—	—	—	2	2	—	1	2	—	—	3	—	—	—	—	—	1	11
97. Fermanagh ..	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
98. Galway	—	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	6
99. Kerry	—	—	—	—	7	1	—	—	—	—	—	—	—	—	—	—	—	—	8
100. Kildare	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
101. Kilkenny ..	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	3
102. King's County..	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	2
103. Leitrim	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
104. Limerick ..	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	3
105. Londonderry ..	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	1	3
106. Longford ..	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
107. Louth	—	—	1	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	3
108. Mayo	—	—	—	—	3	—	—	—	—	—	—	1	—	—	—	—	—	—	4
109. Meath	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	3
110. Monaghan ..	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	2
111. Queen's County	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	2
112. Roscommon ..	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1

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Textile Factories in which Payment is made wholly or partly by Piece—*continued.*

Counties.	Cotton.			Wool and Worsted.			Flax, Jute, Hemp & Tow.			Silk.	Lace.	Hosiery.	Elastic Web.	Cocoanut Fibre.	Small Ware.	Hair.	Carpet.	Miscellaneous.	Total.
	Spinning only.	Spinning and Weaving.	Weaving only.	Spinning only.	Spinning and Weaving.	Weaving only.	Spinning only.	Spinning and Weaving.	Weaving only.										
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
113. Sligo	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
114. Tipperary ..	—	—	—	—	10	—	—	—	—	—	—	1	—	—	—	—	—	—	11
115. Tyrone	—	—	—	—	1	—	6	—	12	—	—	—	—	—	—	—	—	—	19
116. Waterford ..	1	—	—	—	3	—	—	1	—	—	—	—	—	—	—	—	—	—	5
117. West Meath ..	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	3
118. Wexford ..	—	—	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	4
119. Wicklow ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
IRELAND	2	—	1	2	88	3	52	19	101	—	—	6	—	—	—	—	—	5	279
ENGLAND & WALES	925	372	1,083	296	899	335	20	24	18	252	386	294	35	22	69	16	40	112	5,193
SCOTLAND	17	3	72	42	149	65	86	40	117	10	25	56	—	—	—	4	24	40	750
IRELAND	2	—	1	2	88	3	52	19	101	—	—	6	—	—	—	—	—	5	279
UNITED KINGDOM	944	375	1,156	340	1,136	403	158	83	233	262	411	356	35	22	69	20	64	157	6,227

Textile Workshops in which Payment is made wholly or partly by Piece.

Counties.	Hosiery.	Cotton.	Wool sorting.	Wool.	Flax, jute, &c.	Silk.	Cocoanut fibre.	Hair.	Elastic web.	Carpets.	Small ware.	Miscellaneous.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1. Anglesey	2	—	—	1	—	—	—	—	—	—	—	—	3
2. Bedford	1	—	—	—	—	—	—	—	—	—	—	—	1
3. Berkshire	—	—	—	—	—	—	1	—	—	—	—	—	1
4. Brecknock	—	—	—	2	—	—	—	—	—	—	—	—	2
5. Buckingham	—	—	—	—	—	—	—	—	—	—	—	—	—
6. Cambridge	1	—	—	—	—	—	—	—	—	—	—	—	1
7. Cardigan	2	—	—	12	—	—	—	—	—	—	—	1	15
8. Carmarthen	3	—	—	36	—	—	—	—	—	—	—	1	40
9. Carnarvon	3	—	—	1	—	—	—	—	—	—	—	1	5
10. Chester	12	3	—	—	—	7	—	—	—	—	—	1	23
11. Cornwall	—	—	—	—	—	—	—	—	—	—	—	—	—
12. Cumberland	14	—	—	—	—	—	—	—	—	—	—	—	14
13. Denbigh	1	—	—	—	—	—	—	—	—	—	—	1	2
14. Devon	1	—	2	—	—	—	—	—	—	—	—	1	4
15. Derby	14	—	—	—	—	1	—	—	1	—	—	1	17
16. Dorset	—	—	—	—	—	—	—	—	—	—	—	1	1

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Textile Workshops in which Payment is made wholly or partly by Piece—*continued.*

Counties.	Hosiery.	Cotton.	Wool sorting.	Wool.	Flax, jute, &c.	Silk.	Coconut fibre.	Hair.	Elastic web.	Carpets.	Small ware.	Miscellaneous.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
17. Durham	20	—	—	—	—	—	—	—	—	—	—	—	20
18. Essex	—	—	—	1	—	—	—	—	—	—	—	1	2
19. Flint	1	—	—	—	—	—	—	—	—	—	—	—	1
20. Glamorgan	22	—	—	12	—	—	—	—	—	—	—	19	53
21. Gloucester	1	—	1	—	—	—	—	—	—	—	—	—	2
22. Hampshire	—	—	1	—	—	—	—	—	—	—	—	—	1
23. Hereford	1	—	—	—	—	—	—	—	—	—	—	—	1
24. Hertford	—	—	2	—	—	—	—	—	—	—	—	2	4
25. Huntingdon	—	—	—	—	—	—	—	—	—	—	—	—	—
26. Kent	3	—	1	—	1	—	—	—	—	—	—	—	5
27. Lancaster	102	10	—	—	—	—	1	1	—	—	2	17	133
28. Leicester	126	—	—	—	—	—	—	—	1	—	—	2	129
29. Lincoln	6	—	—	1	—	—	—	—	—	—	—	—	7
30. London	—	—	—	—	—	—	—	—	—	—	—	—	—
31. Merioneth	—	—	—	—	—	—	—	—	—	—	—	—	—
32. Middlesex	3	1	—	—	—	8	—	2	—	—	—	8	22
33. Monmouth	—	—	—	—	—	—	—	—	—	—	—	3	3
34. Montgomery	—	—	—	—	—	—	—	—	—	—	—	—	—
35. Norfolk	3	—	—	—	2	1	—	5	—	—	—	—	11
36. Northampton	1	—	—	—	—	—	—	—	—	—	—	—	1
37. Northumberland	11	—	—	—	—	—	—	—	—	—	—	—	11
38. Nottingham	57	—	—	—	—	—	—	—	—	—	—	—	57
39. Oxford	1	—	—	1	—	—	—	—	2	—	—	1	5
40. Pembroke	—	—	—	9	—	—	—	—	—	—	—	—	9
41. Radnor	—	—	—	—	—	—	—	—	—	—	—	—	—
42. Rutland	—	—	—	—	—	—	—	—	—	—	—	—	—
43. Shropshire	4	—	3	—	—	—	—	—	—	—	—	3	10
44. Somerset	—	—	—	—	—	1	—	1	1	—	—	2	5
45. Stafford	13	—	—	—	—	2	—	—	—	—	—	1	16
46. Surrey	2	—	—	—	—	—	—	—	—	—	—	—	2
47. Suffolk	3	—	—	—	—	16	1	23	—	—	—	1	44
48. Sussex	—	—	—	—	—	—	—	—	—	—	—	—	—
49. Warwick	4	—	—	—	—	18	—	—	—	—	—	3	25
50. Westmorland	1	—	—	1	—	—	—	—	—	—	—	—	2
51. Wiltshire	—	—	3	1	—	—	—	—	—	—	—	1	5
52. Worcester	3	—	—	—	—	—	—	—	—	6	—	—	9
53. York, E. Riding													
54. „ N. „	65	—	43	4	—	—	—	—	—	—	—	81	193
55. „ W. „													
England and Wales ...	507	14	56	82	3	54	3	32	5	6	2	153	917

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Textile Workshops in which Payment is made wholly or partly by Piece—*continued.*

Counties. (1)	Hosiery. (2)	Cotton. (3)	Wool sorting. (4)	Wool. (5)	Flax, jute, &c. (6)	Silk. (7)	Cocoanut fibre. (8)	Hair. (9)	Elastic web. (10)	Carpets. (11)	Small ware. (12)	Miscellaneous. (13)	Total. (14)
56. Aberdeen	7	—	—	—	—	—	—	—	—	—	—	—	7
57. Argyll	—	—	—	—	—	—	—	—	—	—	—	—	—
58. Ayr...	12	1	—	—	—	—	—	—	—	—	—	1	14
59. Banff	1	—	—	—	—	—	—	—	—	—	—	—	1
60. Berwick	—	—	—	—	—	—	—	—	—	—	—	—	—
61. Bute	—	—	—	—	—	—	—	—	—	—	—	—	—
62. Caithness	—	—	—	1	—	—	—	—	—	—	—	—	1
63. Clackmannan	—	—	—	11	—	—	—	—	—	—	—	—	11
64. Dumbarton	2	5	—	—	—	—	—	—	—	—	—	—	7
65. Dumfries	1	—	—	1	—	—	—	—	—	—	—	—	2
66. Edinburgh	2	—	—	—	—	—	—	—	—	—	—	—	2
67. Elgin	—	—	—	—	—	—	—	—	—	—	—	—	—
68. Fife	2	—	—	—	1	—	—	—	—	—	—	—	3
69. Forfar	1	—	—	—	6	—	—	—	—	—	—	—	7
70. Haddington	—	—	—	—	—	—	—	—	—	—	—	—	—
71. Inverness	1	—	—	—	—	—	—	—	—	—	—	—	1
72. Kincardine	—	—	—	—	2	—	—	—	—	—	—	—	2
73. Kinross	—	—	—	—	—	—	—	—	—	—	—	—	—
74. Kirkcudbright	—	—	—	—	—	—	—	—	—	—	—	—	—
75. Lanark	21	8	—	1	—	3	—	—	—	—	—	3	36
76. Linlithgow	2	—	—	—	—	—	—	—	—	—	—	—	2
77. Nairn	—	—	—	—	—	—	—	—	—	—	—	—	—
78. Orkney and Shetland ...	—	—	—	—	—	—	—	—	—	—	—	—	—
79. Peebles	1	—	—	—	—	—	—	—	—	—	—	—	1
80. Perth	—	—	—	—	—	—	—	—	—	—	—	—	—
81. Renfrew	5	2	—	2	—	—	—	—	—	—	—	—	9
82. Ross and Cromarty ...	—	—	—	—	—	—	—	—	—	—	—	—	—
83. Roxburgh...	8	—	—	—	—	—	—	—	—	—	—	—	8
84. Selkirk	1	—	—	7	—	—	—	—	—	—	—	—	8
85. Stirling	1	2	—	—	—	—	—	—	—	—	—	—	3
86. Sutherland	—	—	—	—	—	—	—	—	—	—	—	—	—
87. Wigtown	—	—	—	—	—	—	—	—	—	—	—	—	—
Scotland...	68	18	—	23	9	3	—	—	—	—	—	4	125
88. Antrim	13	—	—	—	—	—	—	—	—	—	—	4	17
89. Armagh	3	—	—	—	—	—	—	—	—	—	—	2	5
90. Carlow	—	—	—	—	—	—	—	—	—	—	—	—	—
91. Cavan	—	—	—	—	—	—	—	—	—	—	—	—	—
92. Clare	—	—	—	—	—	—	—	—	—	—	—	—	—
93. Cork	—	—	1	—	—	—	—	—	—	—	—	—	1

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Textile Workshops in which Payment is made wholly or partly by Piece—*continued.*

Counties. (1)	Hosiery. (2)	Cotton. (3)	Wool sorting. (4)	Wool. (5)	Flax, jute, &c. (6)	Silk. (7)	Cocoanut fibre. (8)	Hair. (9)	Elastic web. (10)	Carpets. (11)	Small ware. (12)	Miscellaneous. (13)	Total. (14)
94. Donegal	—	—	—	—	—	—	—	—	—	—	—	1	1
95. Down	—	—	—	1	—	—	—	—	—	—	—	—	1
96. Dublin	3	—	—	—	—	1	—	—	—	—	—	—	4
97. Fermanagh	—	—	—	—	—	—	—	—	—	—	—	—	—
98. Galway	1	—	—	—	—	—	—	—	—	—	—	—	1
99. Kerry	1	—	—	1	—	—	—	—	—	—	—	—	2
100. Kildare	—	—	—	—	—	—	—	—	—	—	—	—	—
101. Kilkenny	—	—	—	—	—	—	—	—	—	—	—	—	—
102. King's County	—	—	—	—	—	—	—	—	—	—	—	—	—
103. Leitrim	—	—	—	—	—	—	—	—	—	—	—	—	—
104. Limerick	2	—	—	—	—	—	—	—	—	—	—	1	3
105. Londonderry	2	—	—	—	—	—	—	—	—	—	—	—	2
106. Longford	1	—	—	—	—	—	—	—	—	—	—	—	1
107. Louth	—	—	—	—	—	—	—	—	—	—	—	—	—
108. Mayo	—	—	—	—	—	—	—	—	—	—	—	—	—
109. Meath	—	—	—	—	—	—	—	—	—	—	—	—	—
110. Monaghan...	—	—	—	—	—	—	—	—	—	—	—	—	—
111. Queen's Co.	—	—	—	—	—	—	—	—	—	—	—	—	—
112. Roscommon	—	—	—	—	—	—	—	—	—	—	—	—	—
113. Sligo	1	—	—	—	—	—	—	—	—	—	—	—	1
114. Tipperary	—	—	—	—	—	—	—	—	—	—	—	—	—
115. Tyrone	—	—	—	—	—	—	—	—	—	—	—	—	—
116. Waterford...	2	—	—	—	—	—	—	—	—	—	—	—	2
117. West Meath	—	—	—	—	—	—	—	—	—	—	—	—	—
118. Wexford	—	—	—	—	—	—	—	—	—	—	—	—	—
119. Wicklow	—	—	—	—	—	—	—	—	—	—	—	—	—
Ireland	29	—	1	2	—	1	—	—	—	—	—	8	41
England and Wales	507	14	56	82	3	54	3	32	5	6	2	153	917
Scotland...	68	18	—	23	9	3	—	—	—	—	—	4	125
Ireland	29	—	1	2	—	1	—	—	—	—	—	8	41
United Kingdom	604	32	57	107	12	58	3	32	5	6	2	165	1083

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ANNUAL REPORT OF THE INSPECTOR UNDER THE COTTON CLOTH FACTORIES ACTS.

SIR, Manchester, March, 1901.

The work of the Cotton Cloth Factories Branch deals not merely with the administration of the Cotton Cloth Factories Acts (as extended by Section 31 of the Factory and Workshop Act, 1895), but includes a share in the administration as regards humidified factories, of the Special Rules for Flax and Linen Factories. The number of factories or rooms with which this Branch is concerned, is shown in the following table :—

TABLE A.

Distribution according to County and Process of Rooms from which Humidity Returns were received at the end of 1900.

COUNTY. (1)	NUMBER OF ROOMS USED FOR												TOTAL.
	Cotton.			Wool Spinning.	Worsted Spinning.	Silk.		Hemp Carding, etc.	Jute Spinning.	Flax Spinning.		Linen Weaving.	
	Weaving. (2)	Spinning. (3)	Winding. (4)	(5)	(6)	Spinning. (7)	Winding. (8)	(9)	(10)	Dry Process. (11)	Special Rules. (12)	(13)	
Chester	35	40	—	—	7	—	1	—	—	—	—	—	83
Cumberland	1	1	—	—	—	—	—	—	—	—	4	—	6
Derby	8	—	—	4	8	—	—	—	—	—	—	—	20
Durham	—	—	—	—	13	—	—	—	—	—	—	—	13
Gloucester	6	—	—	1	—	—	—	—	—	—	—	—	7
Lancaster	729	156	11	—	1	—	—	—	—	—	5	—	902
Nottingham	—	—	—	8	—	4	—	—	—	—	—	—	12
Stafford	—	—	—	—	—	1	—	—	—	—	—	—	1
Warwick	—	—	—	—	5	—	—	—	—	—	—	—	5
York, West Riding	41	28	2	7	84	3	—	2	—	—	1	—	166
Ayr	—	—	—	—	—	—	—	—	—	—	6	—	6
Clackmannan	—	—	—	3	—	—	—	—	—	—	—	—	3
Forfar	—	—	—	—	—	—	—	—	1	—	1	—	2
Kincardine	—	—	—	—	—	—	—	—	—	2	—	—	2
Renfrew	—	1	—	—	—	—	—	—	—	—	2	—	3
Antrim	—	—	—	—	—	—	—	—	—	—	101	43	144
Armagh	—	—	—	—	—	—	—	—	—	—	14	22	36
Cork	—	—	—	—	—	—	—	—	—	—	2	1	3
Down	—	—	—	—	—	—	—	—	—	—	27	14	41
Dublin	—	—	—	—	—	—	—	—	—	—	—	1	1
Londonderry	—	—	—	—	—	—	—	—	—	—	—	4	4
Louth	—	—	—	—	—	—	—	—	—	—	—	3	3
Tyrone	—	—	—	—	—	—	—	—	—	—	7	4	11

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Table A—*continued.*

—	NUMBER OF ROOMS USED FOR												TOTAL.
	Cotton.			Wool Spinning.	Worsted Spinning.	Silk.		Hemp Carding, etc.	Jute Spinning.	Flax Spinning.		Linen Weaving.	
(1)	Weaving. (2)	Spinning. (3)	Winding. (4)	(5)	(6)	Spinning. (7)	Winding. (8)	(9)	(10)	Dry Process. (11)	Special Rules. (12)	(13)	
ENGLAND and WALES ...	820	225	13	20	118	8	1	2	—	—	10	—	1,217
SCOTLAND	—	1	—	3	—	—	—	—	1	2	9	—	16
IRELAND	—	—	—	—	—	—	—	—	—	—	151	92	243
UNITED KINGDOM ...	820	226	13	23	118	8	1	2	1	2	170	92	1,476

NOTE.—In the above table "Spinning" includes carding and other processes preparatory to spinning.

The figures above do not vary much from those of last year, the principal change being a reduction of 16 Cotton Cloth Factories.

(1.) COTTON CLOTH FACTORIES ACTS.

The administration of the Cotton Cloth Factories Acts underwent a change during 1900. The number of Inspectors specially appointed to deal with matters arising under these Acts having been reduced from three to one, H.M. Inspectors in charge of districts were, for the first time since the passing of the original Act of 1889, called upon to assist in the enforcement of that enactment. Owing, no doubt, in a large measure to this change of system and to the pressure of work upon the District Inspectors, the administration of the law has not been quite so thorough as may be hoped for in future years.

My own time was again largely taken up in enforcing the Regulations issued by the Secretary of State under the Cotton Cloth Factories Act, 1897.

Ventilation of Humidified Weaving Sheds.—In dealing with the work of the year, the first place may fairly be assigned to the ventilation of weaving sheds, partly on account of its intrinsic importance, and partly owing to the fact that the Secretary of State's Regulation on the subject, for the first time in the history of factory legislation, aimed at a scientific standard of ventilation based on the actual purity of the atmosphere breathed by the workers. This was to be determined by ascertaining the proportion of carbonic acid (CO_2) present in the air of the shed. The working of such an important piece of legislation as this will probably not be without interest even outside the particular trade affected.

The Regulation (which was made after an exhaustive enquiry by a committee consisting of Sir Henry Roscoe (Chairman), the late Sir William Roberts, and Dr. Ransome), applies to all artificially moistened cotton weaving sheds, and reads as follows :—

> "The arrangements for ventilation shall be such that during working hours in no part of the cotton cloth factory shall the proportion of carbonic acid (carbon di-oxide) in the air be greater than nine volumes of carbonic acid to every ten thousand volumes of air."

As Sir Henry Roscoe's committee pointed out, the particular standard of nine volumes of CO_2 per 10,000 volumes of air is one which many authorities would regard as too lax from a health point of view, but, as they anticipated, it has certainly led to a very great improvement in the atmosphere of many weaving sheds. In previous reports I

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have given tables to show the extent of this improvement in cases where tests were made before and after the Regulation was complied with. The following table gives similar information based upon tests made of 35 weaving sheds in 1900, and, as before, the last two columns (which are the proper bases of comparison) are prepared by deducting from the actual proportion of CO_2, four volumes per 10,000, as being the approximate amount commonly present in the outside air of manufacturing towns. The figures in these last two columns, therefore, give a tolerably accurate indication of the respiratory impurity present in the air.

TABLE B.

Comparison of Air in Cotton Weaving Sheds before and after Improvement in Ventilating Arrangements.

No. of Comparison.	No. of Volumes of Carbonic Acid (CO_2) per 10,000 Volumes of Air.		Approximate number of Volumes of CO_2 per 10,000 due to Respiration.	
	Before Improvement in Ventilating Arrangements.	*After* Improvement in Ventilating Arrangements.	*Before* Improvement in Ventilating Arrangements.	*After* Improvement in Ventilating Arrangements.
1	16·7*	7·8	12·7	3·8
2	12·0*	8·2	8·0	4·2
3	11·1*	9·2*	7·1	5·2
4	10·1*	9·0	6·1	5·0
5	15·0*	9·1	11·0	5·1
6	10·6	9·3	6·6	5·3
7	15·8	6·0	11·8	2·0
8	10·1	6·2	6·1	2·2
9	11·7	7·2	7·7	3·2
10	9·7*	7·3	5·7	3·3
11	15·7	7·5	11·7	3·5
12	10·7*	7·5	6·7	3·5
13	18·6	6·6	14·6	2·6
14	11·0*	6·8	7·0	2·8
15	14·4*	8·0	10·4	4·0
16	15·4	10·0*	11·4	6·0
17	11·9	7·5	7·9	3·5
18	13·1	8·6	9·1	4·6
19	12·5	7·4	8·5	3·4
20	11·2	8·4	7·2	4·4
21	14·7	8·2	10·7	4·2
22	11·7	7·3	7·7	3·3
23	9·7	7·2	5·7	3·2

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TABLE B—*continued.*

No. of Comparison.	No. of Volumes of Carbonic Acid (CO_2) per 10,000 Volumes of Air.		Approximate number of Volumes of CO_2 per 10,000 due to Respiration.	
	Before Improvement in Ventilating Arrangements.	*After* Improvement in Ventilating Arrangements.	*Before* Improvement in Ventilating Arrangements.	*After* Improvements in Ventilating Arrangements.
24	15·6*	7·9	11·6	3·9
25	15·0*	6·7	11·0	2·7
26	11·2	7·8	7·2	3·8
27	15·2	8·1	11·2	4·1
28	10·4	7·1	6·4	3·1
29	15·1	7·2	11·1	3·2
30	13·1	9·4	9·1	5·4
31	11·5	8·0	7·5	4·0
32	17·8	8·9	13·8	4·9
33	11·8	8·5	7·8	4·5
34	11·1	6·5	7·1	2·5
35	12·9	9·0	8·9	5·0
Average	13·0	7·9	9·0	3·9

* Average of 2 tests

These results (which affected in the aggregate more than 6,000 workers) show that a remarkable diminution in the unwholesomeness of the atmosphere had been made by the more powerful systems of ventilation adopted. Indeed, it will be seen that the average reduction in the respiratory impurity was upwards of 50 per cent., and that in several instances this impurity was brought down to less than one-third of that previously existing.

In other cases (not included in the above Table) considerable improvements have been made in the same direction, but as official tests had not been previously made in these cases, I am unable to give an indication of the precise advance made. As an instance of this sort, I may refer to the action of an eminent firm of cotton manufacturers who, in other directions, have done much for their operatives. Being desirous of giving their workers a purer atmosphere, this firm installed a powerful system of ventilation in one of their weaving sheds; and, owing to its success there, extended the system to another and larger shed, in which over 700 weavers were employed. The efficiency of the system may be judged from the fact that in five samples of air taken from different parts of the shed, the carbonic acid ranged from 5·6 to 6·7 volumes only per 10,000 volumes of air—proportions which indicate a very much higher standard of purity than that required by the law.

It is pleasing to be able to record such a result as this, more particularly as it was attained on the initiative of the employers and without any stimulus on the part of the inspector. I regret that instances of this sort have not very frequently come to my knowledge; on the contrary, there is often considerable difficulty in obtaining the legal minimum of ventilation. However, opposition to the sanitary improvements required by the

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law is, I think, becoming more and more discredited by the leading employers. Experience shows that improved health conditions almost invariably lead to better work, and, looking at the matter purely from a commercial point of view, justification can generally be found for expenditure which leads to greater vigour on the part of the workers.

The proportion of carbonic acid previously existing in some of the sheds referred to in Table B was, I think, appalling, when it is remembered how much of their time weavers spend in their workplaces. It has frequently been remarked that the physique of cotton operatives does not reach a very high standard. The conditions under which many of them have been employed have certainly not been of such a character as would favour a high standard of physical development. The labours of Sir Henry Roscoe's Committee have, however, already been fruitful in bringing about a great advance in the working conditions of some thousands of weavers, and it is reasonable to hope that if the improvements recommended by the Committee were generally attained in textile factories of all classes, the standard of health of the workers would be considerably raised.

It is unfortunate that records of sickness are not commonly kept in mills; if they had been, comparisons might have been made to show the effect on the health of the workers of improvements in ventilation. Judging, however, from the observation of managers and others, there has already been a marked reduction in sickness in many of the sheds in which improved ventilating arrangements have been installed; and it is fair to assume that the full effects of fresher air have not yet had time to show themselves.

Ventilation in Spinning Rooms, &c.—The Regulation limiting the proportion of carbonic acid in the atmosphere is enforced only in artificially moistened sheds or rooms in which the weaving of cotton cloth is carried on.

In this connection the following tables may be interesting, showing as they do, the results of determinations of the carbonic acid in air taken during 1900 from various classes of rooms other than cotton weaving sheds:—

TABLE C.

Carbonic Acid in Cotton Spinning Mills.

No.	Process.	Space per head in cubic feet.	Temperature in degrees Fahrenheit.	No. of volumes of CO_2 per 10,000 vols. of air.	Remarks.
1	Spinning	9,500	79	9·4	No mechanical means of ventilation.
2	,,	9,000	85	24·2	
3	,,	8,500	86	33·5	
4	,,	9,500	87	17·7	
5	,,	11,000	91	22·9	
6	,,	10,000	92	23·9	
7	,,	10,000	92	28·1	
8	,,	10,000	85	32·2	
9	Carding	4,000	80	10·2	

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TABLE D.

Carbonic Acid in Wool or Worsted Mills.

No.	Process.	Approximate space per head in cubic feet.	No. of volumes of CO_2 per 10,000 vols. of air.	Remarks.
1	Drawing	5,700	6·1	Ventilated by a mechanical system of ventilation. The amount of air introduced by this, however, appeared to be small.
2	„	5,700	8·0	
3	Spinning	11,000	6·5	
4	„	5,500	9·6	
5	„	3,300	12·0*	
6	„	?	5·4	Some windows open.
7	Spinning & Drawing	?	7·0	Door open.
8	Drawing	2,500	6·8	
9	Spinning	1,800	5·8	One fan running and some windows open.
10	„	2,000	5·6	Some windows open.
11	„	2,000	6·7	
12	Twisting	1,500	5·7	Some windows open.
13	Warping	1.500	7·3	
14	Drawing	9,000	6·3	Space not fully occupied.

* Gas was burning when this sample was taken.

The extremely high proportions of CO_2 in some of the cotton spinning rooms call for comment. The mills from which the samples were taken are in Bolton, and are certainly not (from a structural point of view) bad specimens—a fact which is indicated by the amount of space per head. It seems hardly likely that with so much space per person the carbonic acid could reach such proportions from respiratory impurity alone, and it is probable that it arose largely from gas consumption. But, seeing that the samples were not taken until 4 o'clock in the afternoon, and that no gas appeared to have been burnt in the rooms since breakfast time, it is obvious that the ventilation of the rooms must have been extremely feeble.

At a time when so much is being spent to cure disease by means of fresh air, attention might profitably be paid to its prevention by the same means, and there is obviously a very wide field for action in this direction. Most intelligent observers will, I think, be convinced that there is a great waste of human life and energy owing to the defective supply of fresh air to indoor workers. The figures I have given in Table B afford evidence that recent legislation has brought about very great improvements in this direction in humidified cotton cloth factories, and there is probably room for equal or even greater improvements in a large number of other cases. Bad as the atmosphere used to be in some of the places dealt with in Table B it is probable that in many of the non-humidified weaving sheds of Lancashire it is even worse; for in most, if not in all, of the sheds referred to in the table there were (thanks to the Cotton Cloth Factories Act, 1889), some mechanical means of ventilation, whereas in the so-called "dry" sheds such means are frequently absent altogether.

Purity of Steam.—The Secretary of State's Regulations stipulate that steam used for moistening the atmosphere of weaving sheds should be raised from pure water. People unacquainted with the practice of "steaming" may, perhaps, have some difficulty in believing that there was any necessity for such a stipulation; but, unfortunately, steam

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used for this purpose was frequently raised from water which was extremely impure—occasionally even containing sewage and the decaying remains of animals. Sir Henry Roscoe's Committee called attention to the necessity for reform in this respect, which generally seems to have escaped attention.

Last year, in a considerable number of mills, steps were taken to provide pure steam for moistening purposes, and I hope that, before long, cotton manufacturers will be free from the reproach that they vitiate with impure steam the atmosphere breathed by their workpeople. One very unpleasant feature of the "steaming" question will then have been removed.

Temperature.—As far as I could judge, greater attention was paid by employers last year than in previous years to the requirement that the outside of the roofs of weaving sheds should be kept whitewashed in summer—with the view, of course, of reflecting heat rays.

I referred last year to the regulation limiting the sizes of steam pipes used when the temperature of a factory is over 70° Fahr. In the particular case referred to then, I understand that the required improvement has been made, notwithstanding the adverse decision of the Blackburn bench of magistrates. I am afraid, however, that there are still a few sheds in which there is need for action.

Gas Lighting in Weaving Sheds.—In my Annual Report for 1899, I wrote:—

> I am glad to be able to report that some progress has been made in substituting electric lighting for gas in the mills of my district. In all cases such a substitution is (from a health point of view) highly desirable, but in the case of towns in which carburetted water gas is used, it is of special importance in mills. It is a common practice in mills to turn on the gas from a main tap controlling a large number of jets, and not at each jet. The consequence is that a very distinct interval elapses between the time of turning on the gas and the time of lighting some of the jets, and during this interval, the gas is, of course, escaping unconsumed. Where there is a considerable proportion of the poisonous carbon monoxide present in the gas (as is, of course, the case in towns using carburetted water gas), the escape constitutes a danger to health, and it certainly seems to be a question whether steps should not be taken to remove the danger.

That the danger of poisoning referred to was not imaginary, is shown by the following extracts from newspapers reporting two distinct cases in one town, within three days of each other, a few months after the publication of my report.

The "Northern Daily Telegraph" of the 23rd October, 1900, reported one case as follows:—

> A singular incident occurred yesterday at Messrs. ———, Blackburn. ———, engine-tenter, at a quarter to six turned on the gas at the meter which supplies the whole of the mill, and when an overlooker named ——— entered soon afterwards he noticed that there was an escape of gas. He turned off a stop-tap inside the weaving-shed, but turned it on directly afterwards in order that the shed could be lighted. Work was commenced at six o'clock, and went on as usual until seven o'clock, when a number of the weavers complained of being sick. The lights were extinguished, and several of the operatives fainting, they were carried out into the mill yard, and afterwards assisted home or taken to a neighbouring hotel. The engine was stopped for a time, but when it was thought that the workpeople had recovered, the looms were again set in motion. Ten minutes later, however, another stoppage was necessary, owing to the fact that more operatives were seized with illness and faintness. A weaver named ——— was carried home unconscious, and remained in that condition for over an hour, being attended by Dr. ———. ——— also suffered severely from the effects of the gas escape, and was taken to the surgery of Dr. ———. Work was not resumed until after the dinner-hour, when most of the workpeople had recovered. To-day all were at work except ———, who, it is expected, will be able to return to the mill to-morrow. The whole of the weavers in the shed were more or less affected, but only some half-dozen were overpowered by the gas fumes.

The "Blackburn Times" of the 20th October, 1900, reported a case at another mill as follows:—

> Yesterday morning the weavers employed by Messrs. ———, Furthergate, had a most unpleasant experience through an escape of gas into the shed. Several of the hands were so greatly affected by the fumes that they were unable to follow their work for some time. Three of the weavers, all women, had to be removed home, and placed under medical care; but one of them, it is reported, returned to work in the afternoon. The escape of gas was due to an accident. It is the practice at the shed to turn off the gas in the evening at the main

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which runs into the shed, and at the meter. By some mischance, it does not appear that the usual practice was followed on Thursday evening. The meter tap only was turned. When the engineer went to his work yesterday morning, he, in accordance with custom, turned the meter tap, and as the main was open the gas escaped into the shed. It had been escaping at least fifteen minutes before the shed was lighted up for work to commence, and the wonder is that something more serious did not happen. Nobody appears to have perceived that there was more gas in the place than usual, but as breakfast time approached it became apparent from the condition of many of the weavers that their systems had become impregnated with gas. After breakfast a dozen of the weavers had to be helped into the yard, and a few of them fainted. When it was found that something was wrong a supply of brandy was obtained, and this was administered to the weavers, who in the open air soon recovered from the poisonous effects of the gas.

Although these cases illustrate the serious risk of poisoning attendant upon the use of gas, I do not think the principal objection to its use in weaving sheds arises so much from this risk as from the certainty that the air becomes highly vitiated by the products of the combustion of the gas. To ascertain the extent of this vitiation, I hoped to collect last winter a number of samples of air from sheds during gas lighting periods, and to determine the carbonic acid therein, but pressure of work prevented me from doing this. I, however, reproduce the results of a few tests made for Sir Henry Roscoe's Committee in the winter of 1896–7.

TABLE E.

Carbonic acid in sheds when lighted by gas.

—	Approximate No. of Minutes since gas was lighted.	System of Mechanical Ventilation.	No. of Volumes of Carbonic Acid per 10,000 Volumes of Air.	Remarks.
1	35	Exhaust fans	18·7	Taken from different points in same shed.
2	45	Do.	14·6	
3	60	Do.	39·5	Do. do.
4	65	Do.	46·7	
5	40	None	39·2	—
6	10	Do.	31·2	—

These figures give some indication of the pollution caused by gas in weaving sheds, but, bad as they are, the results, I fear, do not deal adequately with the matter. It will be seen that no sample was taken after gas had been burning for more than 65 minutes; whereas, in the depth of winter, gas is commonly burnt for a much longer period. One hardly likes to picture the state of the atmosphere after, say, two hours of continuous gas consumption.

I was glad to note last year that there was an addition to the number of mills lighted by electricity.

(2.) FLAX MILLS AND LINEN FACTORIES.

Special Rules were established for these factories about seven years ago, after an enquiry by my predecessor, Mr. Osborn. As amended in 1896, these rules read as follows:—

WEAVING SHEDS

(in which artificial humidity is produced).

An efficient 14-inch extracting fan shall be provided for every 2,500 square feet of floor surface, such ventilation to be arranged to the satisfaction of the Inspector of Factories, and to be kept in operation during working hours.

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In every weaving factory where artificial humidity is produced, there shall be provided, maintained, and kept in correct working order two sets of standardised wet and dry bulb thermometers. A difference of at least two degrees shall be kept during working hours between the wet and dry bulbs (*e.g.*, Dry Bulb 75, Wet Bulb 73).

(1.) One set of thermometers is to be fixed in the centre and one at the side of the factory, or in such other position as may be directed or sanctioned by an Inspector of Factories, so as to be plainly visible to the operatives.

(2.) The occupier or manager, or person for the time being in charge of each factory, shall read the thermometers twice in the day, viz., between ten o'clock and eleven o'clock in the forenoon, and between three o'clock and four o'clock in the afternoon, on every day that any operatives are employed in the factory, and shall record the readings of each thermometer at each of such times on a form provided for the purpose for each set of thermometers, in the form and in accordance with the regulations contained in Schedule B of the Cotton Cloth Factories Act, 1889, and the readings indicated at any time by the said thermometers shall be taken to represent the actual humidity of the room at such time.

(3.) The form in which the readings of each thermometer provided for in sub-section (ii.) of this section are to be recorded shall be kept hung up near the thermometers; and after being duly filled up, shall be forwarded at the end of each month to the Inspector of the District, and a copy shall be kept at the factory for reference.

WET SPINNING ROOMS.

Where splashboards are not provided, waterproof overalls or aprons shall be provided by the occupier for all the workers, such overalls or aprons to be sufficient to protect the lower part of the chest to the satisfaction of the Inspector.

The lids of the troughs shall be kept in perfect repair to check escape of steam.

Floors shall be kept in sound condition so as to prevent retention or accumulation of water.

The same rules shall be adopted with respect to humidity as are required in the weaving sheds.

WET SPINNING ROOMS AND WEAVING FACTORIES.

Whenever steam is injected into any room, the pipes conveying the same shall be jacketed with non-conducting composition to the satisfaction of the Inspector of Factories.

ROUGHING AND SORTING AND HAND HACKLING ROOMS.

Exhaust fans shall be provided so as to draw the dust forward and down from the face of the worker, unless some other arrangement shall be found equally effective, to the satisfaction of the Factory Inspector.

Respirators shall be provided for the use of the workers, if children or young persons, and be worn by them at work.

MACHINE HACKLING ROOMS.

Preparation and Card Rooms.

Exhaust fans shall be provided on the side of the room where the machines are, and inlets provided from 6 to 7 feet from the ground on the opposite side, unless some other arrangement of such fans shall be found equally effective.

Respirators shall be provided for the use of the workers, if children or young persons, and be worn by them at work.

DRESSING ROOMS.

Dressing rooms must be ventilated so as to render harmless any gas, vapour or other impurities.

The above Rules have certainly led to very great improvements, particularly in "Roughing" and "Sorting" rooms; but, notwithstanding this fact, the conditions still existing in many of the mills which I visited, seemed to me so dangerous to health as to call for serious consideration.

Attention was directed to evils existing in flax mills in the course of some striking observations in your Annual Report for 1899 (pages 229–231), by Mr. Cooke-Taylor, H.M. Superintending Inspector for Scotland and Ireland, and by Mr. Wilson, H.M. Inspector for the Dundee District.

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While in Belfast last year, I had the advantage of a conference with representative employers in both the spinning and the weaving branches of the industry, and I was extremely pleased to receive from them an assurance that they would welcome any suggestion which might be made for the improvement of the health conditions of their workers.

The following remarks may perhaps indicate some directions in which improvements may be hoped for :—

Wet Spinning Rooms.—The conditions under which work is carried on in these rooms frequently appeared to me to be deplorable.

I observed several instances in which workers (particularly children) had their garments wet through by the spray of water from the frames. It is highly undesirable that young persons should leave hot and humid rooms to face a chilling winter atmosphere with garments in this condition, and I am very decidedly of opinion that steps should be taken to prevent such a state of things.

The Special Rule as to the provision of waterproof aprons (instead of splashboards) hardly works with complete satisfaction. The rule does not require that the aprons should be worn, and there is frequently considerable opposition on the part of the workers to wearing them. Wet spinning rooms are frequently very moist as well as hot, and a high degree of moisture tends, of course, to check the free perspiration necessary to minimise the distressing effect of a high temperature. One can hardly wonder, therefore, at the objection of the workers to still further check perspiration by wearing a waterproof covering.

The high degree of humidity and temperature often existing in the spinning rooms merits attention. The degree of humidity at temperatures over 70° Fahr., is frequently far in excess of that permitted by the law in cotton mills, and I do not consider that the resources of civilisation have yet been, in many cases, exhausted in the efforts to reduce the moisture and heat of the rooms.

The Special Rules do not deal with the ventilation of wet spinning rooms, though there is certainly considerable room for improvement in this direction.

I think that, wherever steam escapes from the troughs (as it generally does), any steam injected into the troughs should be raised from pure water. I observed several instances where steam raised from highly impure water was blown into troughs from which steam escaped in considerable quantities.

So far as I could ascertain, the water supplied to the troughs was generally drinking water, although I was informed that, at one time, very impure water was occasionally used in them. Pure water for this purpose is obviously desirable.

Linen Weaving Sheds.—The time at my disposal did not permit of many tests of the fans installed in sheds to comply with the Special Rules, but the tests made indicated considerable variations in efficiency of output, which did not always reach a very high standard.

In view of the experience now acquired in cotton cloth sheds, it seems desirable to set up a standard of ventilation based upon the actual purity of the atmosphere in the sheds—leaving to the manufacturer the choice of means by which the standard is to be attained.

I occasionally observed that the steam by which the atmosphere of the sheds was moistened was distinctly impure. Air breathed by the workers ought not to be vitiated by steam raised from impure water. The practice has been prohibited in cotton weaving sheds, and is equally undesirable in linen weaving sheds.

A further field for assimilation of the regulations for cotton cloth and linen weaving sheds is to be found in matters relating to temperature—such as the whitewashing of the outsides of the roofs in summer, and the covering and sizes of steam pipes used when the temperature is over 70° Fahr.

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"Roughing" and "Sorting" Rooms.—In these rooms the Special Rules have been extremely valuable, and the arrangements made for the removal of dust are frequently, though not always, good. In view, however, of the variations, both in the means adopted and in the results attained, there is, I think, need for a more exact standard than is at present laid down by the Special Rules.

Anemometer tests indicated that, not only in different rooms, but also even in the same room, there were great variations in the exhaust at the different "berths" where the operatives were employed. For example, in one room the amount of air drawn away at different berths varied from nothing up to 166 cubic feet per minute, and in another room from 150 cubic feet to 390 cubic feet per minute.

Inlets were frequently so utterly inadequate or unsuitable as to seriously cripple the efficiency of the exhaust fans provided in accordance with the Rules. As an instance I may refer to two tests, within a few minutes of each other, of the exhaust at the same berth in a room. The first test was made with the inlets all closed, as I found them on entering the room. I then had a window opened, with the result that a second test indicated an increase in the exhaust at the berth of no less than 290 per cent. over the previous test.

Wherever exhaust fans are running attention should obviously be paid to the sufficiency and position of inlets, and also to means of warming the incoming air in winter, otherwise the inlets will probably be closed by the workers in cold weather.

In some cases the arrangements for heating these rooms was either entirely wanting or defective.

Card Rooms.—The condition of the bulk of the card rooms visited by me was extremely bad. The atmosphere breathed by the operatives was so highly charged with fine dust as to warrant the conclusion that healthy and vigorous life under such conditions could not be expected. The appearance of the workers (although some of them were of a good age) certainly seemed to bear out this view. For the most part they were pale and emaciated, and one manager with whom I discussed the matter told me that it was extremely distressing to him to observe the effect on the operatives, as, after working for some time at the cards even the healthiest appeared to waste away.

With comparatively short periods of exposure to the air of these rooms, I found the dust extremely irritating to myself, although I was careful to minimise its effect by breathing through the nose. The effect on those workers (mostly women) who are employed constantly in these rooms must be, as a rule, extremely bad.

Machine Hackling and Preparing Rooms.—The principal evil in these rooms appears to be dust which, however, varies very considerably in different rooms according not merely to the class of flax worked, but also to the means taken to prevent the dust from passing into, or remaining in, the air of the rooms. Some of the rooms visited were very bad, more fairly bad, while a few were distinctly good as regards freedom from dust.

As in "roughing" and "sorting" rooms, the arrangements for the inlet of air to feed the exhaust fans were frequently extremely defective. To give some idea of the *minus* pressure caused by this defect, I may mention that I made a test of the rate of flow of air through a broken window of one room, and that this test indicated a velocity of no less than 1,700 feet per minute! In a few instances I observed that air was being drawn into the rooms from the closets—a most undesirable form of inlet.

The arrangements for heating these rooms in winter were occasionally inadequate. In more than one mill there appeared to be no heating arrangements in the preparing rooms other than gas, which, I was informed, was sometimes burnt when not required for lighting purposes owing to the "heat and damp" given off. It is not necessary to pollute the atmosphere with the products of gas consumption in order to obtain heat and damp, and other means of securing these ends ought, I think, to be insisted upon.

Another very undesirable way of obtaining heat and damp for a preparing room came under my observation in Belfast. This was by forcing into the room air from a wet spinning room in the same mill. If it is desirable to introduce moist air into preparing rooms, the air might at least be fresh, and not the vitiated air from another department.

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Humidity in the Preparatory Departments.—The practice of artificially moistening (generally by means of steam) the air of preparing and card rooms appears to be extending. This may be beneficial, not merely to the process, but also to the operatives by allaying or preventing dust. As to its influence in this direction I obtained very little information, as managers did not appear to have paid much attention to this aspect of the question. Judging, however, from the experiments I made in cotton weaving sheds for Sir Henry Roscoe's Committee, artificial moisture may have some effect in reducing the amount of dust in the atmosphere.

There seems no reason to apprehend any excessive degree of moisture in these rooms, so that there would probably be no object in requiring the provision of hygrometers and records of temperature and humidity, as in other humidified textile rooms.

Unfortunately the *quality* of the steam used for moistening the air of preparing and card rooms was not always above suspicion. As I have suggested in reporting on other departments, steam for this purpose should, I think, be always raised from pure water.

Reeling Rooms.—The Special Rules do not apply to these rooms, where, as a rule, the ventilation appeared to me to be extremely inadequate. Before taking action on this point, it would of course be desirable to obtain exact knowledge by taking samples of air and determining the proportions of carbonic acid (CO_2), which, I apprehend, are frequently very high.

Dressing Rooms.—A distressingly high degree of temperature is frequently found in these rooms, the arrangements for keeping down the temperature being occasionally quite inadequate.

Recommendations.—I am of opinion that careful enquiry should be made into the sanitary conditions of flax mills and linen factories, with special reference to the following objects :—

1. Protection of workers from dust.
2. Ventilation of all departments, particularly reeling rooms, wet spinning rooms and weaving sheds.
3. Prevention of excessive humidity and temperatures in wet spinning and weaving.
4. Protection of workers in wet spinning rooms from wetting by the spray from the frames.
5. Prohibition of the use of impure steam or impure water for moistening the air breathed by workers.
6. Reduction of temperature in dressing rooms.

I have, &c.,

W. WILLIAMS,

H.M. Inspector of Factories.

H.M. Chief Inspector of Factories.

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REPORT OF THE ENGINEERING ADVISER.

SIR,

THE work of the past year has been interesting and varied, but as much has been simply supplementary to the work of others, and special reports have been made already on the most important matters, only a brief outline will be necessary.

Early in the year, acting on your instructions, in consequence of objections from the manufacturers of bichromates to the establishment of the Special Rules framed for them, I visited all the firms concerned, and by slight modifications, which in no way impaired the efficiency of the code, was able, chiefly owing to their reasonable attitude, to secure withdrawal of opposition, and to advise them as to simple and effective modes of remedying certain defects in arrangements, which have subsequently proved satisfactory.

Previous to the arbitration on the new rules for match works, the principal manufacturers were visited, and careful observation made as to existing systems of ventilation for removal of fumes and their efficiency or otherwise, and an opinion formed as to the requisite improvements desirable; and while the provincial firms were considering whether they should accept the rules as settled for the Metropolis, I visited these, and supervised the plans made for bringing their several departments into line with the rules at the most reasonable rates, so as to enable them to decide how far the necessary expenditure would be justified by their special circumstances.

From the ventilation point of view fairly good systems have been adopted by such firms as have elected to continue business, though in some instances I think less expense might have been incurred with better results had the advice to alter the position of "boxing" benches been acted on so as to ensure less friction in dealing with air.

This, however, is an experience not confined to this branch of industry. It is not uncommon, in the grinding and polishing of metal articles, to find machinery arranged in such a way as to render it extremely difficult to deal satisfactorily with the dust generated in the processes, and where these are prejudicial to health it hardly seems consonant with sound policy that an employer should claim a sort of vested interest in subjecting his workmen to unhealthy conditions, because his machines are badly arranged, any more than custom can now be pleaded for the pollution of streams.

When the Woolcombing Rules, formulated of their own initiative by the Joint Committee of the Bradford Chamber of Commerce and the Bradford Trades Council were proposed to the Secretary of State, by your direction, I examined into the conditions of a number of opening boards—mostly unsatisfactory—with the view of fixing a standard test of draught velocity which could be accepted by the Home Office and the Joint Committee. With Mr. Seal, who greatly assisted me in these investigations, and Mr. Beaumont, to whom I was much indebted for opportunities of discussing the matters under consideration with individual members of the Joint Committee, I attended the final conference, when the recommendations made on the part of the Home Office were almost immediately agreed to by the Committee after a brief explanation. Too much credit can hardly be given to both parties concerned in this noteworthy instance of cordial co-operation between employers and employed, in promoting spontaneously healthy conditions of work.

In October you asked me to confer and consider with Messrs. Moore and Burton, representing the Manufacturers' Committee, as to the new china and earthenware rules so far as they related to the use of fans for "flat knocking" and "fired flint sifting," and "cleaning after the dipper." Mr. Moore was good enough to experiment on my

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suggestion, with the result that practical conclusions were arrived at for effecting these operations without escape of dust where the positions of the "flint arks" rendered the adoption of fans impossible.

Reduced drawings of these arrangements will be found appended to this report.

Since July, when the Committee on the ventilation of Factories and Workshops was appointed, my time has been chiefly taken up by that enquiry; but I have also had under observation and consideration the methods for removal of fumes or dusts in dry-cleaning, hat-furriery, horsehair, and rubber factories, and tin plate works.

Plans have also been sent me for examination, suggestions, or approval, by some of my colleagues, in accordance with the recommendations of your Circular of November, 1899, and it is becoming a not infrequent practice among some ventilating engineers to adopt a similar course. I am also indebted to the latter for drawings of successful plans, applied in some cases to difficult circumstances, and adaptable to analogous or different conditions of structure.

Unfortunately, it is not unusual still to find fans recently installed in positions which greatly neutralise their value, and at a cost for which excellent results might have been attained; but there is a marked advance in attempts to procure improved ventilation. This is shown by the fact that in the last decade one firm has disposed of 60,000 fans; of course, not all in this country.

It appears to me that the necessary crusade against injurious dusts would be facilitated if these were definitely scheduled, and powers given to add to the list as research made their mischievous nature clear.

The presence of silica in dusts of hemp and jute, and Dr. Legge's discovery of the tetanus bacillus in dust of the latter fibre, also the débris of silk dust, amply justify their inclusion in such a schedule, and the list can easily be added to.

I do not think the carding departments of flax, jute, and hemp, will ever be satisfactory until the machines are sufficiently enclosed for a direct exhaust, which cannot be effectively obtained by an underground arrangement, as much of the escape is from the centrifugal force of the upper rollers.

When visiting steam laundries it has seemed to me desirable that the hot rollers of the ironing mangles should be provided with a guard in the form of a strip set a little above the bottom of the top roll, only allowing sufficient room for the piece to be passed through, and making it impossible for the fingers to get between the rollers.

The Chief Inspector of Ohio observes, in recommending this arrangement, that—

> "Manufacturers of this class of machinery throughout the country are now adopting this safety-guard, and *placing it on nearly all the roll-feed machinery built by them.*" He adds, "this safety-strip, or guard, will serve the same purpose on other roll-feed machinery, such as short planers, sandpaper machinery, corrugating machinery used in sheetmetal factories, and, in fact, wherever the material is fed into the machine by means of rolls."

There can be no doubt that the continuous standing involved in laundry-work adds greatly to the fatiguing nature of this work to the women employed, and it has occurred to me that for those employed at the mangling rollers, or hand-ironing, if not seats, at least the support of a slightly sloped rail, about six inches wide, set at the proper distance from the ironing-table, would not only alleviate fatigue, but tend materially to the advantages of better work. Indeed, it should be possible to devise an inexpensive form of sliding seat suitable for this and other employments of women where similar conditions are to be found, and are not conducive to health in later life.

The revolving and sliding seats adopted in the flax mills of Messrs. Renshaw, of Manchester, and Messrs. Greeves, of Belfast, for their women employed in "machine hackling" and "spreading" have proved eminently satisfactory to both employers and employed. They were figured in the annual report three or four years ago.

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By the courtesy of the Chief Inspector of Ohio, U.S.A., I have received a copy of the laws of that State, which are notable for perspicuity of specific detail and comprehensiveness, and indicate a civilisation in advance of some European codes.

Some extracts may be not without interest.

The term "shops and factories" as used in these Statutes are held to include :

> "Manufacturing, mechanical, electrical, mercantile, art, and laundrying establishments, printing, telegraph and telephone offices, railroad depôts, hotels, memorial buildings, tenement and apartment houses, and wherever any improvements are necessary for the health or safety of employees or persons occupying such shops or factories, which being of a fixed and permanent character, become, after being provided, a permanent fixture and property of the owner of the building, such are to be provided by the owner or his agent."

The regulations as to the protection against injury by machinery are also very explicit and inclusive, and where these are violated the Inspector is authorised to paste on any machine, or part of a machine, considered dangerous, a notice to that effect, and no such machine, &c., can be used until the change or alteration recommended is made to the satisfaction of the Inspector.

No child under 16 can be employed where its life or limb is endangered, or health likely to be injured, or its morals depraved, and the Chief Inspector tabulates a long series of forbidden employments, which include that no females under 16 be employed in any capacity where such employment compels them to remain standing constantly.

Also as to the employment of females, it is enacted that every employer shall provide a suitable seat for the use of each, and shall permit the use of such by them when not necessarily engaged in their active duties, and at all times when such use would not actually and necessarily interfere with the discharge of their duties, and such seat shall be constructed or adjusted, where practicable, so as to be a fixture, and not obstruct such female when actually engaged in the performance of such duties when such seat cannot be used.

In April, 1898, adopting partly the law of Michigan State, the following specific regulations for dust creating machinery were passed :—

Section 1. (Blowers required in factory or workshop where dust creating machinery is used : exemption.) That all persons, companies, or corporations operating any factory or workshop where emery wheels or emery belts of any description are used, either solid emery, leather, leather covered, felt, canvass, linen, paper, cotton, or wheels or belts rolled or coated with emery or corundum, or cotton wheels used as buffs, shall provide the same with blowers or similar apparatus, which shall be placed over, beside, or under such wheels or belts in such a manner as to protect the person or persons using the same from the particles of the dust produced or caused thereby, and to carry away the dust arising from or thrown off by such wheels or belts while in operation, directly to the outside of the building, or to some receptacle place, so as to receive and confine such dust ; provided that grinding machines upon which water is used at the point of the grinding contact, and small emery wheels that are used temporarily for tool grinding, and small shops employing not more than one man at such work, and which do not create dust enough in the opinion of the Inspector to be injurious to the operator, shall be exempt from the provisions of this Act.

Section 2. (Operator's duty to provide apparatus : how wheels to be fitted.) . . . Each and every such wheel shall be fitted with a sheet or cast-iron hood or hopper of such form so applied to such wheel or wheels that the dust or refuse therefrom will fall from such wheels, or will be thrown into such hood or hopper by centrifugal force, and be carried off by the current of air into a suction pipe attached to same hood or hopper.

Section 3. (Branch suction pipes : main suction pipes.) Each and every such wheel, 6 inches or less in diameter, shall be provided with a 3-inch suction pipe ; wheels 6 inches to 24 inches in diameter with 4-inch suction pipe ; wheels from 24 inches to 36 inches in

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diameter with 5-inch suction pipe ; and all wheels larger in diameter than those stated, with a suction pipe not less than 6 inches in diameter. The suction pipe from each wheel so specified must be full size to the main trunk suction pipe, and the main suction pipe to which smaller pipes are attached shall in its diameter and capacity be equal to the combined area of such smaller pipes attached to the same, and the discharge pipe from the exhaust fan connected with such suction pipe or pipes shall be as large, or larger, than the suction pipe.

Section 4. (Fans or blowers: branch suction pipes to connect with main pipe: location of main pipe.) It shall be the duty of any person, &c., to provide the necessary fans or blowers to be connected with such pipe or pipes, as set forth in this Act, which shall be run at a rate of speed such as will produce a velocity of air in such suction or discharge pipes of at least 9,000 feet per minute to an equivalent suction or pressure of air equal to raising a column of water not less than 5 inches in a U-shaped tube. All branch pipes must enter the main trunk pipe at an angle of 45° or less ; the main suction or trunk pipe shall be below the emery or buffing wheels, and as close to the same as possible, and be either upon the floor or beneath the floor on which the machines are placed to which such wheels are attached. All bends, turns, or elbows in such pipes must be made with easy smooth surfaces, having a radius in the throat of not less than two diameters of the pipe on which they are connected.

E. H. OSBORN.

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REPORT OF THE MEDICAL INSPECTOR.

SIR,

Following out your instructions I have the honour to forward a report on my work during the past year.

In this report I have emphasised especially facts in connection with lead poisoning, arsenic poisoning as it occurs in the manufacture of emerald green, arseniuretted hydrogen poisoning in chemical works, mercurial poisoning, the occurrence of anthrax in the manipulation of horsehair, and fibroid phthisis induced by the inhalation of hard silicious particles of ganister.

Notification of Poisoning by Lead, Phosphorus, Arsenic and Mercury, and of Anthrax.

Cases Reported under Section 29, 1895.

Disease and Industry.	Number of Reported Cases.		
	1900.	1899.	1898.
Lead poisoning	**1,058**	**1,258**	**1,278**
China and earthenware	200	249	457
Litho-transfer works	10	11	*
Glass polishing	7	8	19
Smelting	34	61	82
Tinning and enamelling	16	24	24
File cutting	40	41	46
White lead	358	399	332
Paints and colours	56	75	59
Coach making	70	65	45
Ship building	32	30	†
Electric accumulator works	33	32	11
Other industries	202	263	203
Phosphorus poisoning	**3**	**8**	**21‡**
Arsenic poisoning	**22**	**—**	**—**
Mercurial poisoning	**9**	**10**	**§**
Anthrax	**37**	**55**	**28**
Wool sorting and wool combing	9	18	16
Horse-hair	12	17	3
Handling of hides and skins	9	16	8
Other industries	7	4	1

* Included in China and Earthenware.
‡ Including 10 before 1898.
† Included in other industries.
§ From 1st May, 1898.

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Lead Poisoning.

The figures for the years 1900 and 1899 so far as the several industries are concerned are strictly comparable. In both years second notifications of persons already included in returns within the preceding twelve months have not been regarded as fresh cases. When a less period than a year is allowed to elapse, there is very great difficulty in determining whether the second notification refers to an attack separate and distinct from the first. Although, therefore, it is advisable to adhere strictly to the above rule in order that the published figures of one year may be comparable with those of another, it is still the routine practice to have inquiry and report made by the Certifying Surgeon and District Inspector in the case of second attacks provided the time that has elapsed since the previous report exceeds two months. The number of second notifications in persons previously reported within the preceding 12 months, was 53 in 1900 as compared with 52 in 1899.

199 cases reported in 1900 among house painters and plumbers, inasmuch as they do not come within the Factory Act, were excluded entirely from the total. The whole object of the notification is to obtain a clue to dangerous conditions of work over which the inspectors can exercise control, and in the case of those whose work is entirely outside a factory or workshop no useful purpose beyond, perhaps, obtaining information as to the prevalence of lead poisoning in such workers can be served by following up the notification by enquiry and report from the certifying surgeon and inspector. In 1899 an attempt was made to distinguish between house painters engaged solely on outside work and those who might possibly have contracted some part of the lead poisoning in mixing lead paints in a workshop occupied by the employer. About 50 cases coming under the second category in 1899 were included under other industries. Their inclusion, therefore, makes the total for that year rather greater than it should be when compared with 1900. Particulars of the circumstances in which cases of lead poisoning (1) in house painters and plumbers, and (2) recurring attacks in the same person, should be notified, are given on p. 119.

With a malady, such as lead poisoning, showing wide variation in the degree of severity, and attended in many cases with considerable difficulty in diagnosis, a tabulation only of the number reported as so suffering conveys hardly any useful information. Only careful analysis according to severity, to the length of time of exposure to the injurious action of lead, to the number of previous attacks, to the nature of the symptoms, and to the precise occupation at which the poisoning was contracted, can make them permanently useful. Much greater value, therefore, should be attached to the accompanying table, which has been prepared in continuation of a similar one published in the last Annual Report of the cases reported in 1899. It may be well to repeat that the table is based upon the reports of the certifying factory surgeon, made, as a rule, a day or two after the notice of the practitioner or occupier has been received. They describe usually not only the particular attack but also the general condition of the patient at the time of the attack. All cases which were marked "fairly severe" or "rather severe" have been included under the heading "severe." Under the heading "moderate" are included a certain number of cases marked as "not severe."

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ANALYSIS OF REPORTS ON LEAD POISONING BY CERTIFYING SURGEONS.

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Analysis of Reports on Lead

Occupation.		Severity of Symptoms.										Number of					
		Severe.		Moderate.		Slight.		Not Stated.		Total.		1st.		2nd.		3rd. or Chronic.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Smelting of metals ...	No. of cases ..	12	—	2	—	19	—	1	—	34	—	24	—	4	—	6	—
	Per cent. ..	35·3	—	5·9	—	55·9	—	2·9	—	—	—	70·6	—	11·8	—	17·6	—
Brassworks	No. of cases ..	1	—	2	—	—	—	—	—	3	—	2	—	1	—	—	—
	Per cent. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sheet lead and lead piping	No. of cases ..	4	—	5	—	7	—	1	—	17	—	12	—	1	—	2	—
	Per cent. ..	23·5	—	29·4	—	41·2	—	5·9	—	—	—	70·6	—	5·9	—	11·8	—
Plumbing and soldering	No. of cases ..	2	—	—	—	6	1	—	—	8	1	3	1	1	—	4	—
	Per cent. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Printing	No. of cases ..	6	—	3	—	8	—	—	—	17	—	11	—	3	—	3	—
	Per cent. ..	35·3	—	17·6	—	47·1	—	—	—	—	—	64·7	—	17·6	—	17·6	—
File cutting	No. of cases ..	16	1	6	—	11	2	2	—	35	3	11	2	6	1	16	—
	Per cent. ..	45·7	—	17·1	—	31·4	—	5·7	—	—	—	31·4	—	17·1	—	45·7	—
Tinning and enamelling of iron holloware	No. of cases ..	1	—	1	1	—	2	—	—	2	3	2	1	—	2	—	—
	Per cent. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
White lead	No. of cases ..	77	10	28	1	176	13	7	4	288	28	245	17	28	3	7	2
	Per cent. ..	26·7	35·7	9·7	3·6	61·1	46·4	2·4	14·3	—	—	85·1	60·7	9·0	10·7	2·4	7·1
Red lead	No. of cases ..	7	—	2	—	10	—	—	—	19	—	17	—	1	—	1	—
	Per cent. ..	36·8	—	10·5	—	52·6	—	—	—	—	—	89·5	—	5·3	—	5·3	—
China and earthenware	No. of cases ..	17	26	15	23	53	46	7	11	92	105	53	71	18	19	14	4
	Per cent. ..	18·5	23·8	16·3	21·9	57·6	43·8	7·6	10·5	—	—	57·6	67·6	19·6	18·1	15·2	3·8
Litho-transfers ..	No. of cases ..	2	1	—	—	5	2	—	—	7	3	6	3	1	—	—	—
	Per cent. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Glass cutting	No. of cases ..	2	—	2	—	3	—	—	—	7	—	3	—	1	—	3	—
	Per cent. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Enamelling of iron plates	No. of cases ..	3	2	4	—	1	1	—	—	8	3	6	3	2	—	—	—
	Per cent. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Electric accumulators	No. of cases ..	9	—	7	—	14	—	—	—	30	—	21	—	5	—	3	—
	Per cent. ..	30·0	—	23·3	—	46·7	—	—	—	—	—	70·0	—	16·7	—	10·0	—
Paints and colours ..	No. of cases ..	20	1	8	—	23	4	—	—	51	5	35	4	10	—	6	1
	Per cent. ..	39·2	—	15·7	—	45·1	—	—	—	—	—	68·6	—	19·6	—	11·8	—
Coachmaking	No. of cases ..	23	—	16	—	19	—	3	—	61	—	32	—	12	—	15	—
	Per cent. ..	37·7	—	26·2	—	31·2	—	4·9	—	—	—	52·5	—	19·7	—	24·6	—
Ship-building	No. of cases ..	14	—	2	—	15	—	—	—	31	—	22	—	3	—	5	—
	Per cent. ..	45·2	—	6·5	—	48·4	—	—	—	—	—	71·0	—	9·7	—	16·1	—
Paint used in other industries	No. of cases ..	21	—	6	—	19	—	—	—	46	—	27	—	12	—	6	—
	Per cent. ..	45·7	—	13·0	—	41·3	—	—	—	—	—	58·7	—	26·1	—	13·0	—
Other industries ..	No. of cases ..	26	11	11	1	18	6	3	—	58	18	36	17	10	—	8	1
	Per cent. ..	44·8	61·1	19·0	5·6	31·0	33·3	5·2	—	—	—	62·1	94·4	17·2	—	13·8	5·6
Total		263	51	120	26	407	77	24	15	814	169	568	119	114	25	99	8
Per cent.		32·3	30·2	14·7	15·4	50·0	45·5	3·0	8·9	100	100	69·8	70·4	14·0	14·8	12·2	4·7

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Poisoning by Certifying Surgeons.

Attack.				Main Symptoms.														
Not stated.		Total.		Gastric.		Anæmia.		Headache.		Paretic.		Encephalopathic.		Rheumatic.		Uterine.	Not stated.	
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	F.	M.	F.
—	—	34	—	30	—	3	—	—	—	6	—	—	—	—	—	—	4	—
—	—	—	—	88·3	—	9·0	—	—	—	17·6	—	—	—	—	—	—	11·8	—
—	—	3	—	3	—	—	—	—	—	—	—	—	—	1	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2	—	17	—	12	—	4	—	—	—	3	—	—	—	—	—	—	1	—
11·8	—	—	—	70·6	—	23·5	—	—	—	17·6	—	—	—	—	—	—	5·9	—
—	—	8	1	8	—	1	—	—	—	—	—	1	—	1	—	—	2	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	17	—	14	—	2	—	1	—	1	—	2	—	1	—	—	1	—
—	—	—	—	82·4	—	11·8	—	5·9	—	5·9	—	11·8	—	5·9	—	—	5·9	—
2	—	35	3	17	2	2	2	1	1	16	—	1	—	1	—	—	2	—
5·7	—	—	—	48·6	—	5·7	—	2·9	—	45·7	—	2·9	—	2·9	—	—	5·7	—
—	—	2	3	2	3	2	1	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13	6	288	28	263	21	32	2	2	1	11	2	15	3	11	1	1	5	3
4·5	21·4	—	—	91·3	75·0	11·1	7·1	0·7	3·6	3·8	7·1	5·2	10·7	3·8	3·6	3·6	1·7	10·7
—	—	19	—	18	—	3	—	—	—	—	—	1	—	3	—	—	—	—
—	—	—	—	94·8	—	15·8	—	—	—	—	—	5·3	—	15·8	—	—	—	—
7	11	93	105	57	64	9	11	8	27	19	3	1	13	8	15	4	12	14
7·6	10·5	—	—	62·0	61·0	9·8	10·5	8·7	25·7	20·7	2·9	1·1	12·4	8·7	14·3	3·8	13·0	13·3
—	—	7	3	6	2	—	—	3	2	—	—	—	—	2	—	—	1	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	7	—	4	—	—	—	—	—	3	—	—	—	1	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	3	3	3	—	—	1	1	—	1	—	—	1	2	—	—	1	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1	—	30	—	30	—	2	—	—	—	—	—	—	—	1	—	—	—	—
3·3	—	—	—	100·0	—	6·7	—	—	—	—	—	—	—	3·3	—	—	—	—
—	—	51	5	40	4	7	—	5	1	9	—	—	—	7	—	—	4	1
—	—	—	—	78·4	—	13·7	—	9·8	—	17·6	—	—	—	13·7	—	—	7·8	—
2	—	61	—	49	—	11	—	9	—	10	—	1	—	2	—	—	3	—
3·3	—	—	—	80·3	—	18·0	—	14·8	—	16·4	—	1·6	—	3·3	—	—	4·9	—
1	—	31	—	29	—	10	—	2	—	3	—	—	—	1	—	—	1	—
3·2	—	—	—	93·6	—	32·3	—	6·5	—	9·7	—	—	—	3·2	—	—	3·2	—
1	—	46	—	40	—	8	—	3	—	10	—	3	—	2	—	—	—	—
2·2	—	—	—	87·0	—	17·4	—	6·5	—	21·7	—	6·5	—	4·3	—	—	—	—
4	—	58	18	47	17	9	5	3	3	6	2	—	1	4	—	—	—	—
6·9	—	—	—	81·1	94·4	15·5	27·8	5·2	16·7	10·3	11·1	—	5·6	6·9	—	—	—	—
33	17	814	169	677	114	105	22	38	35	93	7	25	20	48	16	5	37	18
4·1	10·1	100	100	83·2	67·5	12·9	13·0	4·7	20·7	12·0	4·1	3·1	11·8	5·9	9·5	3·0	4·5	10·7

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A comparison of this table with that for the preceding year shows that for all males the "severity," "the number of attacks," and "the main symptoms" are practically the same, whereas for females the proportion of severe cases to the number of attacks was greater in 1900 than in 1899, and that among the "main symptoms" that of encephalopathy is also greater. The reports bring out the fact that satunine palsy is essentially an affection of the male sex, while the symptoms of headache, anæmia, and encephalopathy, are more common in the female sex.

The figures for 1900 seem to bear out what was tentatively suggested in the last Annual Report, that in the long run the slower and more insidious form of lead poisoning brought about by the absorption of metallic lead, and of the salts of lead in the form of paint, is more severe than that due to the salts of lead in the form of dust or from fumes. At any rate the proportion of severe cases among file cutters and those engaged in coach painting, in shipbuilding, and in other industries where paint is used, exceeds that of those engaged in industries where the danger is primarily from the dust of salts of lead. But the importance of the great diversity in the age distribution and duration of employment of the two classes of workers must not be lost sight of. Probably, also the number of persons exposed to the risk of lead poisoning from metallic lead and from lead paints far exceeds that of those to whom there is risk from salts of lead in the form of dust. The first two points are illustrated in the following table, which has been made out by adding together the age distribution above and below 30 years, and the duration of employment of the persons attacked according as the industry in which the poisoning was contracted involved mainly the use of metallic lead, or of salts of lead in the form of dust, or of salts of lead in the form of paint :—

Source of Poisoning.	Age.		Duration of Employment,	
	Under 30.	30 years & over.	1-5 years.	5 years & over.
Metallic lead ... ... (per cent.)	43·0	57·0	37·4	62·6
Salts of lead as paint ... ... „	43·6	57·4	45·8	55·2
Salts of lead as dust ... ... „	65·4	34·6	76·0	24·0

The comparative slowness of the onset of symptoms in those handling metallic lead or paint, probably makes the workers indifferent to the gradual undermining of the constitution, whereas sharp attacks of colic among white lead and pottery workers causes many of them to seek other employment, so that in the one case there is a constant influx of new hands which is absent in the other. This question of the age distribution and duration of employment are of moment when the question of administrative interference arises.

But the table is capable of showing precisely the kind of preventive measures that must be aimed at. In china and earthenware, white and red lead works, paint and colour factories, litho transfer works, enamelling of iron plates, the essential thing is the removal of the dust at the point where it is produced. Probably 90 per cent. of the cases are due to defect in this respect, and it is, in my opinion, doubtful whether 10 per cent. of the cases in these industries are caused by neglect of other necessary precautions, such as the wearing of overalls and head coverings, or taking meals in the workrooms. On the other hand, where metallic lead and lead paints are used, the essential point is the need of the provision of suitable and sufficient washing conveniences. Probably defect in matters of cleanliness accounts for 90 per cent. of the cases, the remaining 10 per cent. being attributable to the inhalation of the metallic dust.

Something has been done during the year in the direction of educating the workpeople as to the precautions necessary when working with lead. Ten thousand copies of

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the following leaflet were printed, and as it was felt that their distribution could be best carried out by certifying surgeons and medical men charged with the periodical examination of workers, a supply was sent wherever it was known that this was done. The leaflet was brought to the knowledge of occupiers by the District Inspectors, and by the end of the year it was found necessary to obtain a fresh supply. Workers themselves have been anxious to obtain copies :—

LEAD POISONING: HOW CAUSED AND HOW BEST PREVENTED.

Unless great care is taken, work in lead and lead compounds is injurious to health, because the lead enters the system and causes lead poisoning.

Some lead compounds dissolve more easily than others, and this explains why workers coming into contact with white or red lead (as in china and earthenware, and paint and colour works) are usually attacked sooner, and more often, than those handling the metal itself (as in printing works). But the severity of the attack, when it occurs, is unaffected by the kind of lead used.

Many workers in lead have a blue line round the edge of the gums, but the first actual symptoms of the injurious action of lead on the system are costiveness, colicky pains in the stomach, headache and marked paleness. Occasionally headache is associated with epileptic fits, a very serious condition, which may be followed by loss of sight. "Wrist-drop," loss of power in the muscles moving the fingers and wrist, results sometimes from lead poisoning, and may cause permanent disablement from work. It does not usually come on until after a person has worked in lead for some years, and is more often met with in men than in women.

Lead, even if absorbed in small quantities, has a tendency to remain in the system, and if care be not taken it will go on accumulating, so that in time the health may become permanently damaged, even without any definite attack recognised as lead poisoning.

Some persons are affected by lead much more readily than others, and those who find that they are specially susceptible to its pernicious effects should seek employment where lead is not used. Girls and boys, because they are not so likely to observe the necessary precautions as grown-up people, should be closely watched. Women should be especially careful, as the injurious effect of lead in them may seriously interfere with the healthiness of their children.

Lead does not enter the system through the skin, but through breathing dust and through eating food or putting such things as sweets or pipes into the mouth with unwashed hands.

It can, therefore, in great measure be avoided by :—

(1.) Scrupulous attention to cleanliness of the hands, face, teeth and clothing. The hands and nails should always be cleaned with soap and nailbrush before food is eaten, and it is a wise practice also to wash out the mouth. The teeth should be brushed at least once a day, preferably before the evening meal.

(2.) Scrupulous care in avoiding the raising of dust, even although ventilating arrangements exist for carrying away, as far as possible, dust at the point where it is made. Where lead colours are used wet, danger arises from the splashing of the material and its subsequent drying into dust.

In order to avoid the additional danger which results where the lead is carried about in the hair or clothes, all persons working where there is lead dust or danger from splashing should wear overalls and head coverings, which should be washed once a week. Overalls should never be shaken to get rid of the dust.

Aperient medicine, such as Epsom salts (one or two teaspoonfuls in water), can be taken once or twice a week with advantage by lead workers.

Experience shows that the habits and home life of the workers influence their liability to lead poisoning. Intemperate persons are the first to fall victims. Those who begin work on an empty stomach incur additional risk by so doing.

Carefulness while at work, and cleanliness, offer the best means of escaping attacks of lead poisoning.

Those who work in lead should keep in mind, every hour of every working day, the importance of not breathing lead dust and not carrying lead to the mouth in any way.

Medical advice should at once be obtained if signs of lead poisoning present themselves.

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Smelting of Metals.—The 34 cases under this head include 20 in lead smelting and refining works, 7 in the smelting operations incidental to the manufacture of spiegeleisen (under conditions described in last year's Report), 5 in the manufacture of spelter, and 2 in silver smelting. Various occupations distinct from smelting, which is, strictly speaking, the roasting of the native ore in contact with air, are carried on in lead smelting premises, and the grouping of all cases which occur in a lead smelting works under the same head may be misleading if the cause is in all cases regarded as the same.

Thus the occupation in all but four of the cases appears to have been either at the furnace or cupola, and the cause attributable, therefore, to dust in the form of "fumes"; but in charging the furnace the worker is exposed to the dust of litharge and galena, which seems in some cases the most obvious cause for the poisoning. In two cases the poisoning resulted from the dust created in making briquettes (containing probably much litharge) prior to the smelting operations. One case only resulted from the cleaning of the flues, an operation only necessary, as a rule, once or twice a year, but against the danger in which the Special Rules for lead smelting are principally directed.

In consequence of a very heavy incidence of lead poisoning among the workers at one smelting works (12 cases within two months) I visited the works, and among 16 men examined there was only one whose gums were free of a blue line—in most it was particularly dense—eight appeared anæmic; in one there was paralysis of the extensor muscles of the wrist (he had been employed as a smelter for 18 years); and in five others there was some weakness in the grasp. The result of the examination of the workers, several of whom had worked for a few months only, showed that lead in considerable amount must have been inhaled. It was suggested that examination of the air at different points in the factory should be made, in order to ascertain where improved conditions of work were most necessary.

The chemist to the works, Mr. G. D. Cowan, kindly furnished me with the following useful analyses:—

The samples from the cupola were taken from inside the hood (about 5 feet above the men's heads). The gas was filtered through cotton-wool, so that all solid particles were retained, and the remaining gas was treated separately. The solid particles will be called "dust," and the gas, after filtration, "fume."

The cupola samples on being examined gave:—

Dust, 1st sample	0·08152 grains of lead per cubic foot.		
„ 2nd „	0·07297	do.	do.
Fume, 1st sample	0·00526	do.	do.
„ 2nd „			

The samples from the lead well were taken 12 inches above the molten metal at the end of the lead syphon, and gave the following results:—

Dust	0.05653 grains per cubic foot.
Fume	nil.

The briquetting machine samples were taken from the platform where all the ore and fluxes are mixed before briquetting.

The results obtained here were as follows:—

Dust	0·95715 grains of lead per cubic foot.		
Fume, or fine dust that passed through filter.	0·01314	do.	do.

The reason for these high results was owing to dust raised when wagons of ore were tipped prior to mixing.

Assuming that 20 cubic inches of air pass in and out of the lungs at each respiration, a man in eight hours would inhale and exhale 94·4 cubic feet. This amount of air, inhaled at the position in the cupola where the sample was taken, would contain 7·3818 grains of lead; at the lead well 5·3064 grains; and at the briquetting machines 91·5953 grains. Although the condition of the air where the men actually worked must have contained much less than these amounts, the analyses quite serve to explain the heavy incidence. The knowledge thus gained must have emphasised to the firm

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the need for additional precautions, and with the institution of a periodical medical examination monthly of the workers, the number of reported cases has markedly diminished since.

In another smelting works where there has been incidence of lead poisoning, especially on furnace feeders, experiments have been made with various kinds of respirators. It has been found quite easy to prevent absolutely the passage of lead dust into the mouth or nose if the dust is heavy, but dust in the state of fume coming direct from a hot furnace *poor in lead* has totally different properties. When a furnace was blown down containing only traces of lead, it gave off a thin blue fume which was considered too trifling to be of much consequence. Experiments, however, have shown that the particles of lead in these fumes will pass through pressed cotton wool an inch in thickness.

The results of the analysis of the viscera (see case 1 of the list of fatal cases, p. 454), kindly furnished by Dr. Lewis Jones, of Llansamlet, show the need for further inquiry into the effects of the fumes given off in the manufacture of spelter.

Printing.—The number of reported cases in 1900—17—is less by eight than that in the previous year. The small number, however, includes two of saturnine encephalopathy (one fatal) and one of paralysis.

The precise occupation of those attacked is stated to have been as follows:—Compositors ten, linotypists four, stereotypers two, type rubber one, and one occurred to a man engaged in sweeping up the metal filings which drop from the linotype machine.

The reports again bring out the large part played by want of cleanliness in causing the plumbism. This, combined with taking meals in the workrooms, and the pernicious habit which many compositors have of holding the type between their teeth, accounts for their occurrence. The last mentioned point was noted especially in the report on a case of partial paralysis in a lad 15 years of age. In one case the certifying surgeon reports:—"I noticed that a small spicula of lead, like a small thorn, had run into the man's finger," and

Mr. Shinner (*Norwich*) on the same point says:—

> I examined the hands of several of the compositors employed. I did this because on mentioning at a letterpress printer's at Cambridge some time back that a supposed case of lead poisoning had occurred where a set of new type had been started, the foreman of the firm at Cambridge at once said, "If you look at their fore-fingers and thumbs you will probably find that they have been worn sore by the handling of the new type." As a matter of fact I found that this was so. Nearly all the type that was being used was new, and the men's hands, with one exception, were dull, dirty and greasy.

White Lead Works.—The incidence of cases of poisoning in this industry show only slight diminution as compared with the previous year. Included in the total are 10 cases from one firm, which occurred in the previous year, but were not reported until their discovery many months later by the District Inspector, who prosecuted the firm. Were two firms only (one in Newcastle the other in London) excluded from the 18 firms engaged in the manufacture during the year, the total 356 would fall to 175. From the one firm 111 cases were reported, and from the other 72 Both are conspicuous by the large number of casual workers employed. In both works, not only to comply with the Special Rules, but also from a desire to diminish the dangers of working, great alterations were effected by the end of the year, which are having effect in diminishing the numbers reported month by month now. Periodical medical examination of casual workers generally, and of white lead workers in Newcastle in particular, fails to some extent of its purpose owing to (1) the low stratum of society from which the workers are drawn, and (2) the fact that white lead manufacture is not the principal industry, and therefore, the threat of suspension has not on the workers the same effect that it has, for example, upon the women employed in the Potteries district. So long, however, as the appointed surgeons do not recognise that intemperance in a worker should be an immediate indication for suspension from work, cases will occur.

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A strong feeling of doubt exists in the minds of the appointed Surgeons and Certifying Surgeons where the white lead industry is carried on, as to the correctness of the diagonsis in several of the cases notified, since many practitioners regard the presence of a blue line as evidence not of work in lead (as should be the case), but of lead poisoning.

The most important provision of the Special Rules served in 1899—alteration in the construction of the stoves—did not come into force until January, 1901.

Red Lead.—In consequence of the incidence of poisoning in the processes of grinding and packing, considerable improvments in the removal of dust by mechanical means have been made in several of the red lead factories during the year.

China and Earthenware.—The improvement brought about recently in this industry can, perhaps, be best learnt from the following returns :—

Return of the Number of Cases of Lead Poisoning reported (under the Factory and Workshop Act, 1895) as occurring in the Earthenware and China Industry for each Month from January, 1898, to December, 1900, both inclusive.

Month.	Earthenware and China.								
	1898.			1899.			1900.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
January	31	23	54	11	10	21	7	13	20
February ...	10	13	23	13	15	28	7	12	19
March	16	24	40	12	15	27	14	10	24
April	14	20	34	23	19	42	8	14	22
May	14	18	32	9	8	17	5	9	14
June	14	24	38	15	15	30	5	6	11
July	25	26	51	5	9	14	13	5	18
August	10	13	23	6	2	8	4	10	14
September ...	19	18	37	9	4	13	5	4	9
October	13	15	28	10	3	13	13	9	22
November ...	20	36	56	6	15	21	4	6	10
December ...	19	22	41	9	6	15	10	7	17
Total ...	205	252	457	128	121	249	95	105	200

The figures for 1899 and 1900 are the same as those given from month to month in the Labour Gazette. In these years all the reports received have been carefully examined by me, and care taken to distinguish one industry from another, and prevent duplicate entries. The figures for the last two years are not therefore strictly comparable with those given for 1898 ; for the purpose of comparison 25 cases would have to be added in 1899, and 24 in 1900, making the totals 274 instead of 249, and 224 instead of 200.

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Return of the Number of Cases of Lead Poisoning reported under the Factory and Workshop Act, 1895, in the manufacture of China and Earthenware during the period from the 1st day of January, 1899, to the 31st day of December, 1900, distinguishing between cases in the Decorative Processes and cases in the Processes of Dipping, Ware Cleaning, &c.

January 1st to December 31st, 1899.

Processes.	Places under the Special Rules for China and Earthenware Manufacture.															Places under the Special Rules for the making of Transfers for China and Earthenware.		
	China.			*Earthenware.			Tiles.			Majolica.			China Furniture and Electrical Fittings.					
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Dippers	5	—	5	30	10	40	2	3	5	1	—	1‡	—	4	4	—	—	—
Dippers' assistants ...	—	3	3	12	17	29	1	1	2	—	—	—	—	—	—	—	—	—
Ware cleaners ...	3	1	4	—	28	28	—	3	3	—	—	—	—	1	1	—	—	—
Glost placers ...	5	—	5	49	2	51	2	—	2	1	—	1	—	—	—	—	—	—
Majolica paintresses	—	—	—	—	7	7	—	14	14	—	4	4	—	—	—	—	—	—
Ground layers ...	—	—	—	2	8	10	—	—	—	—	—	—	—	—	—	—	—	—
Litho dusters ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	4	11
Colour dusters ...	—	4	4	—	5	5	—	—	—	—	—	—	—	—	—	—	—	—
Colour blower ...	—	—	—	1	1	2	—	—	—	—	—	—	—	—	—	—	—	—
Colour grinders ...	—	—	—	3	—	3	1	—	1	—	—	—	—	—	—	—	—	—
Glaze grinders ...	—	—	—	4	—	4	1	—	1	—	—	—	—	—	—	—	—	—
Fritters†	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Indefinite	—	—	—	5	5	10	—	—	—	—	—	—	—	—	—	—	—	—
Total ...	13	8	21	106	83	189	7	21	28	2	4	6	—	5	5	7	4	11

* In 1899 there are included under the heading "Earthenware" probably a few cases in Jet and Rockingham and China Furniture, and a few in which the nature of industry is given as "China and Earthenware." In 1900 there are included two cases where the nature of the industry is given as "China and Earthenware," and five cases in the manufacture of brown, black, and red ware.

† One case of lead poisoning among fritters was reported in 1899, and one also in 1900, from works where the manufacture of glazes only is carried on.

‡ Under "Tiles" in 1900 are included 14 cases in which a reference is made to majolica.

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Return of the Number of Cases of Lead Poisoning reported under the Factory and Workshop Act, 1895, in the manufacture of China and Earthenware during the period from the 1st day of January, 1899, to the 31st day of December, 1900, distinguishing between cases in the Decorative Processes and cases in the Processes of Dipping, Ware Cleaning, &c.

January 1st to December 31st, 1900.

Processes.	Places under the Special Rules for China and Earthenware Manufacture.																					Places under the Special Rules for the making of Transfers for China and Earthenware.		
	China.			Earthenware.			Tiles.			Majolica.			Jet and Rockingham.			China Furniture and Electrical Fittings.			Sanitary Ware.					
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Dippers	4	—	4	20	1	21	5	2	7	1	1	2	5	—	5	—	1	1	1	—	1	—	—	—
Dippers' assistants...	1	—	1	7	19	26	1	—	1	—	—	—	—	—	—	—	4	4	—	—	—	—	—	—
Ware cleaners ...	4	2	6	2	30	32	—	7	7	—	—	—	—	—	—	—	5	5	—	—	—	—	—	—
Glost placers ...	1	—	1	27	—	27	5	—	5	1	—	1	—	—	—	1	1	2	—	—	—	—	—	—
Majolica paintresses	—	—	—	—	1	1	—	6	6	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—
Ground layers ...	—	2	2	1	4	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Litho dusters ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	2	10
Colour dusters ...	—	5	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Colour blowers ...	—	—	—	1	4	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Colour grinders ...	—	—	—	—	1	1	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—
Glaze grinders ...	1	—	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Fritters†	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Indefinite	—	1	1	2	7	9	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL ...	11	10	21	62	67	129	12	15	27	3	2	5	5	—	5	1	11	12	1	—	1	8	2	10

From the Table for 1899 are excluded 11 cases of second reports on persons already included in the Table, and four cases found not to be due to lead poisoning: from the Table for 1900 are similarly excluded six cases already reported within 12 months, and eight found not to be due to lead poisoning.

Return of the Number of Persons Suspended from Working in Dangerous Processes by the Certifying Surgeons for the Hanley, Burslem, Tunstall, and Stoke Districts in the Manufacture of Earthenware and China during the period from the 1st day of January, 1899, to the 31st day of December, 1900, in pursuance of the Special Rules.

Districts.	January 1st to December 31st, 1899.						January 1st to December 31st, 1900.					
	Places under the Special Rules for China and Earthenware Manufacture.			Places under the Special Rules for the making of Transfers for China and Earthenware.			Places under the Special Rules for China and Earthenware Manufacture.			Places under the Special Rules for the making of Transfers for China and Earthenware.		
	Males.	Females	Total.	Males.	Females	Total.	Males.	Females	Total.	Males.	Females	Total.
Hanley	11	19	30	—	5	5	5	9	14	—	1	1
Burslem	1	31	32	—	—	—	—	33	33	—	—	—
Stoke..	7	46	53	—	—	—	10	30	40	—	—	—
Tunstall	1	7	8	—	1	1	—	7	7	—	—	—
Total	20	103	123	—	6	6	15	79	94	—	1	1

Of the persons suspended in 1899, 27, and of those suspended in 1900, 30, were also reported as cases of lead poisoning, and are thus included in the preceding Return.

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The remainder were suspended on other grounds, which, in the opinion of the Certifying Surgeons, rendered it inadvisable for them to continue in their former occupation. No absolute distinction can be drawn between the number of cases in which the suspension is temporary only and the number in which it involves permanent exclusion from the dangerous process. It has been ascertained, however, that 17 out of the 32 suspensions in the Burslem district in 1899, and 13 out of the 33 suspensions in 1900, were permanent. Very few of the suspensions in the other districts were permanent.

The Certifying Surgeons' districts of Hanley, Burslem, Tunstall, and Stoke include the whole of the North Staffordshire Potteries (except some small potteries near Congleton), that is, about 46,000 persons employed in the manufacture of china and earthenware, of whom about 4,800 are employed in lead processes.

The following Table shows the distribution of the suspensions in 1899 and 1900 among the processes in which they occurred :—

Process.	January 1st to December 31st, 1899.						January 1st to December 31st, 1900.					
	Places under the Special Rules for China and Earthenware Manufacture.			Places under the Special Rules for making of Transfers for China and Earthenware.			Places under the Special Rules for China and Earthenware Manufacture.			Places under the Special Rules for the making of Transfers for China and Earthenware.		
	Males.	Females	Total.	Males.	Females	Total.	Males.	Females	Total.	Males.	Females	Total.
Dipping House ...	19	10	29	—	—	—	13	29	42	—	—	—
Ware Cleaning ...	—	34	34	—	—	—	—	20	20	—	—	—
Glost Placers ...	—	—	—	—	—	—	2	—	2	—	—	—
Majolica	—	26	26	—	—	—	—	8	8	—	—	—
Ground Layers ...	—	14	14	—	—	—	—	6	6	—	—	—
Colour Dusters ...	—	10	10	—	6	6	—	12	12	—	1	1
Colour Blowers ...	—	2	2	—	—	—	—	4	4	—	—	—
Not stated	1	7	8	—	—	—	—	—	—	—	—	—
Total... ...	20	103	123	—	6	6	15	79	94	—	—	—

The following Tables A, B and C are important, as they show the incidence of lead poisoning on the number of persons employed in the different processes of china and earthenware manufacture in the years 1898, 1899 and 1900.

The figures in Table B (relating solely to the Potteries district) were obtained by Mr. Walmsley (*Stoke*), by Circular Letter addressed to the Occupiers.

In order to make the information as far as possible complete for the whole of the United Kingdom, a similar Circular Letter was sent out from the Home Office to occupiers of china and earthenware works outside the Potteries district, and the two added together give the figures in Table A. The figures as to the year 1898, are taken from Dr. Thorpe and Dr. Oliver's Report, page 9 (slightly re-arranged and amplified for purposes of comparison).

Some of the figures on which the percentages are calculated are very small and, therefore, to be accepted with reservation. The figures for 1899 and 1900, in all processes show marked diminution in incidence of lead poisoning, as compared with those for 1898. It is, however, much more marked in the processes of majolica painting, ground laying, and colour dusting than in the operations in the dipping house. Indeed, in 1900, the figures for the dipping house cannot be said to show improvement on those for 1899, and the whole of the diminution of 49 cases in 1900 as compared with 1899, may be said practically to be due to lessened incidence outside the dipping house.

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TABLE A.—Return showing for China and Earthenware Works the Number of Persons Employed in the different Processes of Manufacture in 1900 and the Number of Cases of Lead Poisoning reported to have occurred in them in the Years 1899 and 1900.

Occupation	Number Employed.			Number of Cases of Lead Poisoning.											
				1899.						1900.					
	Males.	Females.	Total.	Males.	Per cent.	Females.	Per cent.	Total.	Per cent.	Males.	Per cent.	Females.	Per cent.	Total.	Per cent.
Dippers	754	103	857	38	5·0	17	16·5	55	6·4	36	4·8	5	4·9	41	4·8
Dippers' assistants	482	365	847	13	2·7	21	5·8	34	4·0	9	1·9	23	6·3	32	3·8
Ware cleaners	100	461	561	3	3·0	33	7·2	36	6·4	6	6·0	44	9·5	50	8·9
Dipping house total ...	**1,336**	**929**	**2,265**	**54**	**4·0**	**71**	**7·6**	**124**	**5·5**	**51**	**3·8**	**72**	**7·8**	**123**	**5·4**
Glost placers	2,247	74	2,321	57	2·5	2	2·7	59	2·5	35	1·6	1	1·4	36	1·6
Majolica painting	10	498	508	—	—	25	5·0	25	4·9	—	—	8	1·6	8	1·6
Ground layers	58	305	363	2	3·4	8	2·6	10	2·8	1	1·7	6	2·0	7	1·9
Colour dusters	6	122	128	—	—	9	7·4	9	7·0	—	—	5	4·1	5	3·9
Enamel colour and glaze blowers	28	160	188	1	3·6	1	0·6	2	1·1	1	3·6	4	2·5	5	2·7
Colour makers and glaze millers and mixers.	360	7	367	9	2·5	—	—	9	2·5	4	1·1	1	14·3	5	1·4
Other persons in contact with lead	179	53	232	5	2·8	5	9·4	10	4·3	3	1·7	8	15·1	11	4·7
Total	**4,224**	**2,148**	**6,372**	**128**	**3·0**	**121**	**5·6**	**249**	**3·9**	**95**	**2·2**	**105**	**4·9**	**200**	**3·1**

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TABLE B.—Return showing for the Potteries District the Number of Persons Employed in the different Processes of Earthenware and China Manufacture in 1900 and the Number of Cases of Lead Poisoning reported to have occurred in them in the Years 1899 and 1900.

Occupation.	Number Employed.			Number of Cases of Lead Poisoning.											
				1899.						1900.					
	Males.	Females.	Total.	Males.	Per cent.	Females.	Per cent.	Total.	Per cent.	Males.	Per cent.	Females.	Per cent.	Total.	Per cent.
Dippers	501	63	564	30	6·0	7	11·1	37	6·6	30	6·0	3	4·8	33	5·9
Dippers' assistants	386	209	595	10	2·6	16	7·7	26	4·4	8	2·1	15	7·2	23	3·9
Ware cleaners	81	414	495	3	3·7	29	7·0	32	6·5	6	7·4	39	9·4	45	9·1
Dipping house total ...	968	686	1,654	43	4·4	52	7·6	95	5·7	44	4·5	57	8·3	101	6·1
Glost placers	1,821	55	1,876	53	2·9	1	1·8	54	2·9	28	1·5	—	—	28	1·5
Majolica painting	—	425	425	—	—	20	4·7	20	4·7	—	—	4	0·9	4	0·9
Ground layers	48	287	335	2	4·2	8	2·8	10	3·0	1	2·1	6	2·1	7	2·1
Colour dusters	2	99	101	—	—	8	8·1	8	7·9	—	—	5	5·1	5	5·0
Enamel colour and glaze blowers	18	153	171	1	5·6	1	0·7	2	1·2	1	5·6	4	2·6	5	2·9
Colour makers and glaze millers and mixers.	209	3	212	6	2·9	—	—	6	2·8	4	1·9	1	33·3	5	2·4
Other persons in contact with lead	68	15	83	5	7·4	4	26·7	9	10·8	3	4·4	7	46·7	10	12·0
Total	3,134	1,723	4,857	118	3·8	94	5·5	212	4·4	81	2·6	84	4·9	165	3·4

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TABLE C.—Return showing for the Potteries District the Number of Persons Employed in the different Processes of Earthenware and China Manufacture in 1898 and the Number of Cases of Lead Poisoning reported to have occurred in them in the Year 1898.

Occupation.	Number Employed.			Cases of Lead Poisoning. 1898.					
	Males.	Females.	Total.	Males.	Per cent.	Females.	Per cent.	Total.	Per cent.
Dippers	495	81	576	41	8·3	7	8·6	48	8·3
Dippers' assistants	518	107	625	20	3·9	19	17·8	39	6·2
Ware cleaners	105	458	563	1	1·0	58	12·7	59	10·5
Dipping house total ...	**1,118**	**646**	**1,764**	**62**	**5·5**	**84**	**13·0**	**146**	**8·3**
Glost placers	1,805	46	1,851	48	2·7	1	2·2	49	2·6
Majolica painting	—	295	295	—	—	31	10·5	31	10·5
Ground layers	89	382	471	10	11·2	45	11·8	55	11·7
Colour and litho dusters ...	16	154	170	10	62·5	32	20·8	42	24·7
Other persons in contact with lead.	95	57	152	22	23·2	3	5·3	25	16·4
Total	**3,123**	**1,580**	**4,703**	**152**	**4·9**	**196**	**12·4**	**348**	**7·8**

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Dr. J. F. Arlidge, Certifying Surgeon for the district of Stoke, has kindly placed at my disposal some very interesting figures, the result of inquiries made by him of 239 married women working in lead processes in the china and earthenware industry.

From each woman he has obtained facts as to the number of children born, the number of these who have died, and the number of miscarriages in the two periods, (1) previous to lead employment, and (2) during or after employment in lead. He has also tabulated the ages at death and the cause of death (whenever possible) of the children, the number of years of work in lead, and the precise occupation.

The general facts from his figures may be tabulated as follows :—

No. of Women.	Previous to lead employment.				During or after lead employment.			
	Children.		Pregnancies.		Children.		Pregnancies.	
	Born.	Died.	Total.	Miscarriages.	Born.	Died.	Total.	Miscarriages.
239	453	183	487	34	499	182	566	67
	100	40·4	100	7·0	100	36·5	100	11·8

The percentage of children who died to the total number born is greater, and the percentage of miscarriages to the total number of pregnancies considerably less, in the period before lead employment than in the period of lead employment.

Dr. Arlidge has distinguished miscarriages from premature births. Among the 183 children who died in the period prior to lead employment are included 14 premature births (7·6 per cent.) and 11 still births (6·0 per cent.), as compared with 17 premature births (9·3 per cent.) and 21 still births (11·5 per cent.), among the 182 who died in the subsequent period. The percentage proportion of still births in the two periods is, therefore, very similar to that of miscarriages as given in the table. There died of convulsions in the period prior to lead employment 33 children (18·0 per cent.), and in that during or after it 28 (15·3 per cent.)—figures which tend to disprove the view that there is special incidence of convulsions on the children of lead workers. Before commencing work in lead 21 of the women had miscarried—a number which is increased to 34 afterwards. Four miscarried in both periods.

Eleven of the 34 miscarriages recorded in the first period were confined to 3 women, and 20 of the 67 recorded in the second also to 3 women. If these extreme cases are excluded the percentage of miscarriages to the total number of pregnancies is reduced to 5·0 and 8·7 respectively. The *proportion* in the two periods, however, remains practically unaltered.

Among the 239 women there were 71 who had had no children prior to work in lead, and in whom the duration of employment had been 10 years and over. It may be assumed, therefore, for them that the whole of their married life was cotemporaneous with work in lead, and that in many of them the full measure of fertility had been reached. These 71 women had 302 children (of whom 114 died), and 38 miscarriages, that is, for every 100 children born 37·7 died and 11·1 of every 100 pregnancies resulted in miscarriage.

The number of miscarriages to pregnancies is variously put as from 1—5 to 1—8 or 10. In a series of 2,000 hospital cases, *i.e.*, wage-earners, it was put at 1—7. Dr. J. F. Arlidge's figures for these 71 women working in lead makes it 1—9, and for the whole 239 women prior to lead employment 1—14.

Dr. Arlidge (*Stoke-on-Trent*) sends the following report of his work :—

I am pleased to report that the number of cases distinctive of lead poisoning is decreasing. The general conditions are improved, and taken all round, the health of those employed in the potteries (Stoke-on-Trent district) shows marked improvement. Many of the workers who were, previous to the issuing of the special rules, "not too careful," have now become careful,

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and are willing, not only to listen to advice, but to act on it. Naturally among such a large number there are a few whom I cannot include in this category, but must trust that the regular examinations, and the good example shown by so many of their fellow workers, will result in a marked diminution of the careless. Owing to the susceptibility of some, cases will occasionally crop up, but the monthly examination will lessen the number, and severe cases will become rare.

The fans in the dusty departments have proved a great boon to the employed, and though they are no doubt the cause of a waste of colour in the ground laying department, and though colour is costly, there is little grumbling on this score from those who have to pay for it, and I may safely say that the employers are agreed that improvement has taken place among the workers, and are satisfied.

Ware cleaners. Among 1,120 ware cleaners examined during the year there have been only fifteen suspended, and though the numbers may be considered small, considering the number examined, I consider it one of the most dangerous for women, and those working in this department cause the greatest anxiety.

Ground layers. Groundlaying must stand next, but as pointed out, the fans have so improved the conditions under which the people work that its danger has become lessened.

Printers dusters. Colour dusting in the printing shop was frequently done by girls, and they were not always as careful as they should be, though they show improvement. Some employers have given up the dusting and use the colour in a moist state.

Blowers (colour). The aërograph is a great improvement, and where blowing colour is used may be carried on by any ordinarily healthy person who is careful.

Glaze blowing. Glaze blowing is, I believe, done principally by men. A sort of kettle is used throwing a spray of considerable dimensions. I cannot but think it dangerous.

China scourers. Here, again, there is improvement, and I see many who have worked for years, and show no bad symptoms. They have bronchitis, coughs, hoarseness; but how many outside such employment do not suffer in the same way.

Majolica. The number of majolica paintresses suspended has not been great this year, and I must put this down in a great measure to greater care in the matter of cleanliness and carefulness among the workers. The cleansing of the mouth out before meals (after they have been at work) must decrease the chance of swallowing lead with the food. This cleansing of the mouth and brushing the teeth is now carried out by the majority of the workers, and the result has been satisfactory.

Dippers. There are not many female dippers. I see a few, and must say, as of ware cleaners, that no woman should take such employment from choice. The dipping house of the present day, however, is such an improved place that I may be wrong: still, such is my opinion, and I give it as such.

Glost placers. The few female glost placers I see are at a tile works, and though I would much rather see them at other employment, there has not as yet been any distinctive case among them as far as I am aware.

Miscarriages. This question has been dealt with by Dr. Legge. If we deduct two cases from the list, one of whom had four miscarriages, another I believe nine, we should find that there is not a great difference in the numbers of these calamities between those employed in lead and the same women previous to their employment in lead. In one case there was distinct history of uterine trouble. It is possible that the cause may be looked for elsewhere. The number of miscarriages previous to lead employment is great, the number during lead employment greater, but only slightly so.

Dr. A. A. Hill (*Tunstall*) reports:—

In presenting my first Annual Report, I am glad to be able to state that there is a considerable diminution in the reported cases of lead poisoning in my district and also that the number of reported cases steadily decreases month by month clearly demonstrating the efficacy of the Special Rules.

I am confident that their extension to the adult male workers will prove of very great benefit.

Most of the persons who are now commencing the work are fully impressed with its dangers, and gladly receive and follow out the simple instructions that are given them.

The few that are careless have to be reproved from time to time.

I consider that the rules have greatly improved the general tone, both moral and physical, of those to whom they apply.

I must add that in a few cases I have experienced a difficulty in convincing the employers of the importance of the monthly examinations. They have been inclined to regard them as an unnecessary expense, and occasionally I have had some trouble in securing privacy, but I trust I have now overcome that difficulty.

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Dr. Bond (*Poole*) reports :—

The physique of those examined remains good.

The *Lead Inspection* has been carried out every month.

The death of E.B., on March 15th, occurred with a suddenness even more tragic than that of J.C., in 1899.

I do not in the least degree find any reason to alter my original opinion that she died from Eucephalitis, the result of lead poisoning.

The case of M.W. is singularly instructive. She began decorating in October, 1898, and remained well until June of this year.

She then complained of numbness in the dorsum of the right middle finger, supplied by the radial branch of the musculo spiral nerve. I suspended her for 14 days and she returned quite well.

On October 20th—the very day after I had examined her at the works—her mother brought her to me complaining of pains in her head and nausea. As she was getting pale, and her symptoms were precisely the same as those of C. and B., I suspended her from lead altogether. She is now, I believe, in fairly good health. She had no signs of lead, only subjective symptoms; but they were quite sufficient for me. Every girl who applies to be taken on as a decorator or majolica painter is sent to me by the firm to be examined as to fitness.

It is very difficult to convince some of them that they are quite unfitted for the work, but the firm always abide by my decision.

Enamelling of iron plates, iron holloware, &c.—During the year 11 cases were reported in the enamelling of iron plates, the occupation being brushing or powdering or dipping.

A leadless glaze is now very largely if not entirely used in the enamelling of iron holloware, and for iron plates progress in the same direction is being made. Firms who still continue to use lead use it principally in the form of a silicate. Nevertheless, among a small number of cases reported from a firm using lead in this form are included a case of paralysis of the wrist, and another of optic atrophy.

During the year four cases of lead poisoning occurred to persons engaged in enamelling copper letters or tablets which do not come under special rules, although the process is in some ways analagous to the enamelling of iron plates. Examination of ten females employed in the dangerous processes in one such workshop (from which a case of paralysis of the wrist had been reported), showed that eight were suffering from anæmia, five complained of headache, one had marked weakness of the wrists, and three had been absent from work with symptoms suggesting strongly connection with their employment. In another where 17 were employed, although it was difficult to find that definite lead poisoning had resulted, the impression left on my mind was that the symptoms of anæmia and headache were more noticeable than would be the case in industries where lead was not used, and in two cases in one of which there was profound anæmia there was weakness of the wrists. The main danger in the employment arises from the brushing on and "woolling off" of a black enamel powder containing, according to Dr. Thorpe's analysis, as much as 67·0 per cent. of lead.

The whole subject of the revision of the special rules for various enamelling processes so as to bring them under one code, is under consideration at the present time.

Glass cutting.—The number of reported cases—7—shows marked diminution when compared with the number in 1898—19. In three of the cases the lead poisoning was contracted several years previously. In one (a case of paralysis) the source of the poisoning is thus described by the certifying surgeon :—

G. W. has been employed to make the putty powder used by the glasscutters. The firm are one of the few who carry out this process themselves, it is more usually done by private workers at home. The process would appear to be a very dangerous one, as lead is subjected to three processes: (1) skimming from a lead bath; (2) pounding the skimmings to a fine powder; (3) screening the powder through a fine sieve. The first, carried on under a strong flue, seems quite safe; the second is done in the open air, the operator wearing a respirator probably an insufficient precaution from the fine lead dust) is open to objection. For the third, the affected person has himself invented a useful screen which must have greatly lessened the danger. Still there is a quantity of lead dust created, and I see no reason why the apparatus should not be encased. G. W. now refuses to carry out the work any longer.

Since then improved methods have been adopted. Of the three cases reported as first attacks, one (an alcoholic subject) had been employed 34 years, another (the

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symptoms being jaundice and some abdominal pain) for 23 years, and the third (a case of paralysis) which occurred in Shoreditch, from polishing with putty powder, is described as "alcoholic and not personally clean."

Electrical Accumulator Works.—The number of cases reported in this industry was 33, one more than in 1899. All the cases are described as slight, but in visiting several of these works in the course of the year I formed the opinion that the cachectic appearance of the men engaged in the pasting of plates with red lead is only to be equalled in men engaged in the most dangerous processes of white lead manufacture. Of 18 men thus employed in one factory anæmia was profound in eight, and a similar number showed symptoms of weakness of the extensor muscles of the wrist or tremor. One only presented a healthy appearance. The duration of employment of these men had been in three less than one year, in seven from one to five years, in four from five to ten years, and in four over ten years. Undoubtedly the men engaged in mixing the lithage or red lead with dilute sulphuric acid, and subsequently pasting the plates, are exposed to the greatest danger, but the men engaged in the preliminary processes of casting and trimming the plates, and in the subsequent processes of soldering and plumbing to combine the elements into the batteries also suffer.

Of the reported cases five occurred in the preliminary processes, 13 either in pasting or an analogous process of pastille moulding, and 16 in lead burning or soldering.

Reference may be made here to the enquiry* made at the instance of the Imperial Health Office to the conditions of work in electrical accumulator works in Germany, which led to the issue of the special rules now governing the industry in that country, a translation of which appeared in the Annual Report for 1898, pages 170, 171.

Already in 1895, in one factory at Hagen during the year 1894 there had been 37 cases of lead poisoning among 252 workers, necessitating absence for sickness amounting to 506 days. Information was collected by circular letter of the Chancellor, dated November 21st, 1895, as to the extent of the manufacture of accumulators and the dangers of working.

The following particulars were received from one factory as to special incidence on particular processes :—

Occupation.	No. Employed.	No. of Cases.	Per Cent.
Casting	30	3	10·0
Pasters	30	9	30·0
Burners	16	6	37·5
Trimmers	30	4	13·3
Plumbers	30	9	30·0
Section builders	60	5	8·3

Special attention, as regards remedial measures, were directed to—

(1.) The casting and preparation of the plates; (2.) The mixing of the paste; (3.) The actual pasting; (4.) The drying and building into batteries of the elements; (5.) The formation or charging of the plates.

(1.) Ordinary lead, often containing antimony, is used for casting the plates. The temperature in the melting pot rarely exceeds 450° C. Lead volatilises only at a white heat, approximately, at the temperature at which iron melts, about 1,200° C.; but at much lower temperatures from the molten surface lead fumes arise, so that the danger from them, or rather from the oxides of lead present in the fumes, is constantly present, and hence the recommendation is made that the melting pot should be provided with an efficient hood and shaft leading either into the open air or into a chimney. This is the more necessary as ordinary commercial lead, as well as antimony, often contains traces of arsenic varying from 0·1 per cent. to 7·9 per cent.

* Die in electrischen Akkumulatoren Fabriken beobachteten gesundheits-schädigungen. Arbeiten aus dem Kaiserlichem Gesundheitsamte, 1898, by Dr. Wutzdorff.

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The trimming of the plates is usually done by machinery, either by means of a circular saw or by a plane, and in this process it can be demonstrated that particles of metallic lead become scattered and are gradually converted into dust. As inhalation of metallic lead may lead to plumbism there is need for prescribing in these preliminary processes arrangements whereby the particles shall be caught, as far as possible, at the point where they are produced.

(2.) The lead oxides, usually lithage and red lead, used for pasting are purchased already prepared in casks. Out of the cask the necessary amount is taken by a spade or trowel and transferred to the mixing bench. Dust is scattered on the floor and carried on the worker's feet to other departments. This danger can be diminished by placing the cask upon a grid and by cleaning the floor at least once a day by a moist method. Mixing of the material with acid to form a paste is done either in a special closed in apparatus, or when only small quantities are used, at the working bench. The amount of dust created diminishes the more moist the mass becomes, but in this process also it can be demonstrated that lead dust gets into the air, and hence the recommendation is made that the mixing and moistening of the materials for the paste shall be done either under an exhaust draught or in an apparatus so arranged that dust cannot escape.

(3.) In the operation of pasting reference is made to the wearing of gloves, and attention called to the difficulty of maintaining them in good repair, to the necessity of their being suitable (otherwise the work is rendered much more difficult) and to the occurrence of skin eruptions as a result of the continuous perspiration they induce. The following recommendation, therefore, is made in order to avoid as far as possible absorption of lead from the skin, instead of gloves, either (*a*) the work not to exceed 8 hours per diem broken by a pause of at least 1½ hours, or (*b*) one 6 hours spell in the day. It is pointed out that (*b*) is the preferable alternative.

Respirators are regarded as unnecessary for men engaged in pasting, but to avoid the falling of portions of paste on the floor and its subsequent drying into dust, the tables and floor should be of smooth impermeable material, and the tables be provided with raised edges.

(4.) When the plates are pressed before drying, and for this purpose wrapped in parchment paper or linen, the removal of these subsequently causes dust, and the operation must, therefore, be carried out under an exhaust draught.

In the building up of the batteries by soldering the elements together ordinary solder is not used, but instead almost pure lead in order that the connections should not be affected by the subsequent treatment in acid. To make this form of connection the heat from an oxygen or hydrogen blow-pipe flame is used. The temperature reached has been demonstrated to be sufficiently high to cause volatilisation of lead. Statistics show that persons engaged in this operation are exposed to considerable risk of lead poisoning. Hence the recommendation is made that soldering by means of a hydrogen blow-pipe flame shall be done under an exhaust draught. Unfortunately similar provision cannot, of course, be required where the plates have to be built up, as is often the case, away from the factory.

Attention is called to the possible danger of arseniuretted hydrogen poisoning in the manufacture of hydrogen gas, from the use of impure zinc and sulphuric acid, and in the formation room. The necessity of using only chemically pure materials is insisted on in the rules.

(5.) Opinions were found to differ as to the effect of the dilute sulphuric acid vapour in the formation room upon the workers. The physician attached to the factory in Hagen believed that persons suffering from bronchitis and other affections of the lungs were improved by work in this department. The amount of sulphuric acid vapour in the air of the formation room is small. At the level of the heads of the workers one cubic metre of air has been found to contain 0·098 grains, which, supposing a worker to inhale five cubic metres in eight hours would mean that 0·49 grains passed in and out of the lungs. But it has been found that dust, in the form of moisture, is almost all deposited in the nasal passages and pharynx, and very little can penetrate into the lungs. Reference is made to the difficulty of providing fan ventilation in such rooms owing to the deleterious action of the acid on the metal, but some form of special ventilation is considered necessary.

The method adopted of determining the presence of lead in the air was the simple one of suspending a sheet of blotting paper, 100 square centimetres in area, previously moistened, at the level of the worker's head. Subsequent treatment with dilute acid and exposure to the action of H_2S showed whether lead had been present.

Paints and Colours.—The incidence of lead poisoning in this industry is heavy. The cases were distributed over 30 factories. Fifteen were reported from one, five from another and three from a third. In 46 of the cases (82·1 per cent.) the occupation is stated to have been either grinding or mixing, no doubt of white lead paint, in two the grinding of vermilionette, in two packing, and one each in stencilling, at the presses, in the warehouse, and in repairing machinery. The proportion of severe cases (39·2 per cent.) is very high, as was the case also in 1899, and in 17·6 per cent. paralysis is noted as a symptom. One case of wrist-drop and facial paralysis with atrophy of the thenar eminences occurred to a reservist who was sent to South Africa, and from there invalided home. Some of the symptoms he noticed slightly before leaving England, but did not

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declare them for fear that he might not be allowed to rejoin the colours. The Certifying Surgeon reports of one man attacked for the second time. "This man is a dwarf and very deaf—he is rather simple-minded and is not in the habit of being careful to prevent himself being injured by absorption of lead." Such a case illustrates the need of medical supervision and the desirability of requiring a certificate of fitness before commencing work where there is white lead dust. In a few instances only has a medical examination periodically of the hands been arranged for voluntarily by the occupier. As showing the rapidity with which saturnine impregnation may occur, a man reported for "colic—cachexia" was stated to have been a sailor until three months previously.

From the analysis of the cases according to occupation which has now been made for the last two years, it is clear at what particular points in the manufacture improved conditions of working are most needed, and the difficulties which the effectual covering in of the paint grinding machines and edge runners and the conveyance into them of the white lead will have to be surmounted. The crudeness of some of the methods of emptying casks of white lead and shovelling the same into the pug-mills is apparent.

Coach Building.—The incidence of lead poisoning in this industry is always heavy. 34 of the cases occurred to men employed by one or other of the railway companies. In one large company in the Midlands where in the past the facilities for washing were bad, 19 cases, many of them chronic, have been reported in the year.

Other Industries.—Among the 86 cases included under this heading are ten contracted in the glazing of bricks under conditions precisely similar to those which prevail in the china and earthenware industry, six in soldering tins, five from the use of chromate of lead in shoe finishing, four from the pernicious practice of testing the joints of gas chandeliers sealed with white or red lead cement by the mouth, four from the enamelling of copper letters under conditions somewhat similar to the enamelling of iron plates, three each in the manufacture of shot and dipping iron casks into molten lead, two each in the manufacture of india-rubber, of metal capsules and of sulphate of lead, &c.

To the conditions forund in the particular brick glazing works where the number of cases of lead poisoning in 1900 was 10, and 12 in 1899 reference has been made in previous annual reports (see pp. 165 and 166 for the year 1898, and p. 259 for the year 1899.) At this factory there has been an improvement in the conditions of work brought about not only by the substitution of fritted lead for raw lead used in the glazes, but also by impressing on the firm the need for the adoption of precautionary measures.

The five cases in shoe finishing are of peculiar interest, not only as occurring in an industry hitherto regarded as one free from the danger of lead poisoning, but also from the readiness on the part of the firms using the chromate of lead in Northampton to discontinue the employment of the material as soon as its danger was brought home to them by the District Inspector and Certifying Surgeon.

The circumstances attending the first two cases (one a case of paralysis of the wrists) were reported as follows by Mr. Wright *(Northampton.)*

> I visited the workshops of Messrs. . . . Northampton, boot makers, where the two persons affected were employed, on the 24th inst., and find they were working as "finishers" of boots and shoes by hand work not *machinery*. In this finishing it is necessary to stain the sole and heel of the boot with some colouring matter, and in these cases China red has been used for the purpose in the dry state.
>
> The process is as follows:—The China red in a dry state is contained in a small shallow vessel, and a piece of sponge or cloth is used to dust it on to the sole of the boot, a piece of fine glass paper being then used to scour it into the leather, a small quantity of grease smeared over, and the sole, &c, is then polished with a dry cloth. During the whole time the operation is carried on, the worker is bending over the boot and must inhale a quantity of the dry China red each time a boot is finished.
>
> On making further enquiry I find that this process is carried on at several other places with exactly the same material, and in one case a quantity of chrome yellow was mixed with the

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China red. I was informed that other *vegetable* materials would answer equally as well, but that the hands had got into the way of using China red.

I have requested that this substance be no longer used until further enquiry can be made into its composition, and occupiers have in all cases promised to comply with my request.

The Certifying Surgeon reporting on a case at Raunds in July, gives further particulars of its use :—

I had no idea that lead was used in shoe making, and since I discovered that fact, I made investigations in several workshops and factories, and find that it is used very often, and very carelessly, the hands and aprons being literally covered by the chromate. It seems also that the masters do not give any permission to use it, and it seems to be used in a hidden way in many cases, as I discovered it in one case where its use was denied by the finisher. It is supplied here by the local chemist and probably procured also from other places. Its use ought to be at once stopped if possible, as it is absolutely unnecessary that it should be used at all.

In August a similar case was reported from Leicester and enquiry in that town showed that in many male adult workshops (but not in factories) chrome colours had been used for several years. The conditions under which work is carried on in these workshops, is similar to that of the file cutting shops in Sheffield. In colour shops in Leicester, chrome and China red, vermilion and aniline colours are sold in penny packets. At one such colour shop recently established in Leicester, the most prominent object in the window were two jars containing chrome pigments. The occupier stated that the demand for chrome colours in Leicester as compared with the place in which he was formerly in business, was such as to compel inquiry by him as to the object for which they were purchased.

An analysis of these colours is given on page 495.

Chromate of lead in yarn-dyeing and Calico works.—I visited during the year 16 yarn-dyeing factories and seven calico printing works in which chromate of lead is used. No case of lead poisoning has been reported within the last two years from this source. A large number of persons were examined, and in some, evidence of work in lead was forthcoming in the existence of a blue line on the gums. Anæmia also was noticed, but in none was there evidence of serious injury to health from lead colic or paralysis. In one indigo blue dye works, where the calico was printed with copper sulphate and lead acetate in the "resist" style to indigo, seven of the 12 men examined were anæmic, but the evidence went to show that the copper rather than the lead was the cause of their ill-health. Most of them showed the green line of copper on the teeth. Chrome holes or their scars are to be found on the hands among many men handling bichromate solutions. They are, however, much less frequent and less severe than are those which occur to workers in bichromate factories. Perforation of the septum of the nose never occurs from the use of bichromate in dye works. There is especial danger from chrome holes when, in the discharge style, a bichromate paste 40 per cent. in strength is printed directly from the rollers on to the calico previously dyed with indigo blue. In the one yarn-dyeing works where periodical medical examination is practiced, the occurrence of chrome holes had never been sufficiently frequent or severe enough to suggest to the management the advisability of including the persons handling bichromate in solution in the medical examination. At this works the medical man conducting the examination has never suspended from employment any worker, although he has found that workers engaged in the noddling or bundling of yarn dyed in orange chrome apply to him for treatment of slight ailments more frequently than do others.

The temperature of the drying-rooms in calico printing works is excessive. In some works the condition has been improved (without detriment to the process) by means of fans. Persons employed in these drying-rooms reduce the amount of clothing to a minimum, and although there is dust the enforcement of a rule (as has been suggested) of the wearing of an overall by them would be attended with very great difficulty.

The evidence collected goes to show that, while in many factories aniline colours are fast replacing those from chromate of lead, there are others engaged principally in an export trade which still rely, and are likely to continue to rely, on chromate of lead for producing their colours. But in these I was informed that the "weighting" of the yarn —the principal cause of mischief in the past—is now obtained in other ways than from chromate of lead itself.

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The following analyses of samples of dusts collected (1) from a drying-room in a calico printing works, and (2) from the place where yarn dyed with orange chrome was being noddled were made in the Government Laboratory by Dr. Thorpe :—

(1.) Contains lead equal to 7·58 per cent. of the sample as lead oxide, nearly the whole of which is soluble in hydrochloric acid of a strength comparable with that existing in gastric juice. It also contains copper equal to 19·12 per cent. of the sample as anhydrous copper sulphate, or 29·97 per cent. as crystallised copper sulphate.

(2.) Contains lead equal to 6·05 per cent. as lead oxide, the greater part of which is soluble in dilute hydrochloric acid of a strength comparable with that found in the gastric juice.

Fatal Cases.—The following is a list of the fatal cases.

Sex.	Age.	Occupation.	Symptoms.	Duration of Employment.	Remarks.
M.	40	Spelter making ..	Paralysis, colic, anæmia. ? meningitis.	16 years ..	An analysis of the viscera was made with the following results :— *Lung.*—2·32 grains of zinc oxide per 1,000 and traces of lead. *Liver.*—1·25 grains of zinc oxide per 1,000 and traces of lead. *Kidney*—0·65 grains of zinc oxide per 1,000 and traces of lead. *Spleen.*—Zinc oxide, nil ; lead, nil.
M.	61	Lead pipe maker ..	Plumbism, renal dropsy, heart failure.	?	
M.	17	Compositor and Printer.	Encephalopathy	4 years. ..	"Acute lead poisoning caused by lead dust adhering to his fingers being a compositor, and taking his food without first washing his hands."
M.	20	Compositor and Printer.	Plumbism, convulsions, coma	?	
M.	45	File cutter	Chronic lead poisoning, chronic nephritis, uræmia.	30 years. ..	Notified under section 29 in 1898 and 1899 for paralysis of wrist.
M.	56	File cutter	Chronic plumbism, asthenia.	Many years.	
M.	39	File cutter	Plumbism, chronic nephritis hæmorrhage.	—	
M.	45	White lead worker..	Convulsions—colic	4½ months.	
M.	26	White lead worker..	Colic, delirium, convulsions, meningitis.	2 months ..	"Acute lead poisoning accelerated by intemperance."
M.	30	White lead worker..	Lead poisoning, convulsions	6 months.	
M.	39	White lead worker..	Tubercular disease induced by lead poisoning.	—	
M.	45	White lead worker..	Colic—vomiting	1 year.	
F.	—	Formerly white lead worker.	Some natural cause, probably convulsions accelerated by white lead poisoning.	?	Had not worked in a white lead factory for 14 months.
F.	27	Ground layer ..	Encephalopathy	?	
M.	53	10 years previously had been a dipper.	"Lead poisoning convulsions."	?	Had not worked in a factory for 10 years. Previously had been a dipper and had wrist drop. Clearly a case of cerebral hæmorrhage, and not of encephalopathy.
F.	23	Majolica paintress ..	? Encephalopathy	1½ years ..	Viscera analysed by Dr. Stevenson. "Results of my examination of the viscera submitted and their analysis do not enable me to pronounce as to the cause of death."
M.	36	Biscuit placer (glost placer until 2 years ago).	"Lead poisoning"	?	This man had had paralysis of extensors of wrist.
M.	32	Formerly dipper ..	"Lead poisoning" (cramp in the legs and delirium).	?	Had not worked in lead for 3½ years. Was notified to Home Office for wrist-drop in 1896.
F.	35	Saucer maker ..	Phthisis, lead poisoning ..	?	Never came in contact with lead,—the medical practitioner who certified the death, saw her for the first time the day before she died. The doctor who attended her for three years denied that there was any connection with lead poisoning.
F.	42	Ware cleaner.. ..	Encephalopathy	9 years.	
M.	34	Glost placer	Hemiplegia, lead poisoning	20 years ..	The doctor who notified the case is stated to have said he did not think it was lead, but he would have to report it as the man worked in lead.
M.	35	Labourer in paint work.	Lead poisoning, pneumonia	?	
M.	48	Paint mixer	Lead colic, heart failure ..	?	
M.	48	Coach painter ..	Plumbism, gout, hepatitis ..	?	

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Fatal Cases—*continued.*

Sex.	Age.	Occupation.	Symptoms.	Duration of Employment.	Remarks.
M.	21	Van painter	Plumbism, pyrexia, heart failure.	?	
M.	44	Coach painter ..	Chronic plumbism, colic ..	?	
M.	46	Coach painter ..	Chronic lead poisoning, convulsions.	?	
M.	50	Ship rivetter	Lead poisoning, uraemic convulsions.	10 years.	
M.	58	Shipwright	Plumbism, heart failure ..	—	
M.	15	Painter's assistant ..	Paralysis of wrists, exhaustion and cardiac failure due to lead poisoning.	2 years ..	603.
M.	30	Steam plough painter	Morbus cordis, lead poisoning.	?	
M.	45	Bridge painter ..	Lead poisoning	?	
M.	33	Iron safe maker ..	Lead poisoning, Bright's disease.	?	
M.	28	Galena crushing ..	?	—	Analysis of viscera made by Public Analyst of County of Lancaster, W. Collingwood Williams. "I obtained one eighth of a grain of lead from less than one ounce of the lung. I found smaller but marked quantities of lead in the large intestine, liver, and spleen, a trace of lead in the stomach and no lead in the kidney or brain."
M.	25	Lead light maker ..	Lead colic	—	

MERCURIAL POISONING.

The number of cases of mercurial poisoning contracted in a factory or workshop was 9, as compared with 10 in 1899. The particulars of the cases are as follows :—

Sex.	Age.	Industry.	Precise Occupation.	Severity.	No. of Attack.	Duration of Employment.	Symptoms
M	31	Manufacturing chemists.	Pushing trays into retorts.	Slight —	First	10 years.	Debility and nervous tremor.
M	42	„ „	Charging ovens ..	Severe (eight weeks under treatment).	„	„	Extreme debility with nervous tremors.
M	26	„ „	Making red oxide, charging ovens.	Severe ..	„	1½ years.	Ulcerated mouth, fœtor of breath, salivation, debility, nervous tremor.
M	19	Alkali works ..	Mercury recovery process.	Moderate ..	„	Not stated.	Salivation.
M	33	Thermometer making.	—	—	Chronic	8 years.	Tremor and anæmia.
M	31	Electrical meters	—	Rather severe	Second	2 years.	Tremor and anæmia.
F	37	Manufacture of jellies.	Quicksilvering trays (process carried on once or twice a year).	Slight ..	„	5 days.	Fœtor of breath. No salivation
M	50	Glass silverer (has done none for three years).	—	Severe ..	Chronic	32 years.	Tremors very marked in head and arms. Cannot walk without assistance. Molar teeth lost.

The cases thus notified, though not large, were useful in leading to inquiry in the factories where they had occurred, and in other similar works, into the condition of the persons employed. Thus in factories where mercurial preparations are made, such as calomel, corrosive sublimate, the red oxide (used largely as an anti-fouling paint for ships' bottoms), and vermilion, of 27 men examined four (15 per cent.) were found with more or less salivation and 10 (37 per cent.) with tremor. Anæmia and gastric derangement also were frequently noted.

The danger in the manufacture of these mercurial compounds arises chiefly in the subliming operations from the volatilization of the metal when heat is applied, and to a less extent from the dust which, though very heavy, can become scattered and inhaled if such processes as mixing, sieving, and grinding are not carried out with care in closed in vessels.

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The conditions noted were sufficiently serious to lead me to draw up the following rules to be observed where mercurial preparations are made, and in the two principal factories they have been voluntarily adopted.

1. The firm will appoint a surgeon to examine all persons employed in mercurial processes at least once in every month, and he will undertake any necessary medical treatment of illness contracted in consequence of such employment. He will have power to suspend any such person from work in any place or process.

The surgeon will enter in a register the dates and results of the examination of the persons employed as above.

No person after suspension can be employed in any mercurial process without written sanction from the surgeon.

Every person employed in a mercurial process must present himself at the appointed time for examination by the surgeon.

2. The firm will provide sufficient and suitable overall suits for the use of persons engaged in the process of sifting and grinding, and every person when so engaged must wear an overall suit.

3. The firm will provide respirators, approved by the surgeon, for persons engaged in processes where there is unavoidable dust, and every person so employed must wear the respirator.

4. The firm will provide and maintain washing conveniences in the proportion of one lavatory basin to each five persons employed, with soap, nail-brushes, and towels, and a constant supply of hot and cold water laid on to each basin.

Every person must, before meals and before leaving the premises, thoroughly wash in the basins provided, and those who have worn overalls and respirators must deposit them, before leaving the factory after the day's work, in the place appointed for the purpose by the firm.

The firm will see that the overalls are washed once a week, and the respirators renewed or washed every day.

5. The firm will provide and maintain a bath with hot and cold water laid on, and a sufficient supply of soap and towels. Every person shall have the opportunity of taking a bath at the factory once a week, and those whom the surgeon directs must do so.

Each person taking a bath must sign his name in a register.

6. The firm will provide and maintain a cloak-room in which workers can deposit clothing put off during working hours separate from any portion of the works where mercurial processes are carried on.

7. No food or tobacco are to be taken into, nor is food to be eaten, in any part of the factory where mercurial processes are carried on.

8. The foreman must report to the manager any instance coming under his notice of a workman neglecting to observe these rules.

Note.—The danger against which the rules are directed is that of mercurial poisoning, of which the principal symptoms are soreness of the gums, offensive breath, increase in the amount of spittle, and trembling of the fingers.

Workers are warned of the danger arising from the chewing of tobacco and of eating food with unwashed hands. Mercury has a tendency to destroy the teeth, and this can be best obviated by the use of a tooth-brush once every day.

In these works the processes are sufficiently varied to give ample opportunity for alternating work in the dangerous mercurial processes with that of other kinds quite free from risk. No hardship, therefore, should result to the worker where the surgeon making the examination sees fit to suspend temporarily or permanently from mercurial work.

Electrical Meters.—In this comparatively new industry the danger arises from the free use and handling of metallic mercury. In 1899 five cases were reported from one factory engaged in the manufacture of electrical meters where the conditions of work were unsatisfactory. Since then the firm has moved to a new factory. In the new premises the floor is of concrete, the benches covered with impervious material, and the ventilation ample. Examination of the workers here showed only very slight indication of the injurious nature of the processes. One of the five men notified in 1899 had left the firm and obtained similar work in another town. He was again attacked, and investigation of his case by Mr. Owner (*South London*) showed that the conditions of work as regards defective ventilation, and carelessness (the result of ignorance of the danger attaching to the work) on the part of the men was causing definite illness among them. Detailed examination of the 18 men employed showed that four or five had marked signs of mercurialism in the mouth and throat. The symptom of tremor was absent, no doubt because the duration of employment in the great majority had been less than one year.

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Here, also, periodical medical examination and treatment were clearly indicated and readily assented to by the occupier. Fortunately rapid increase in the business of the firm necessitated the building of a new factory, and the following information as to the structural and other conditions to be aimed at in places where metallic mercury is used was sent to the firm, and has been acted upon in the new premises:—

(1) The flooring and benches should be smooth, impermeable, and free from cracks or crevices in which mercury can lodge. Preferably the floor should be of some kind of asphalt or cement laid in such a way that channels all converge towards a receptacle where the scattered mercury may collect. Wood, although at present in common use, is not well adapted for the purpose. The receptacles should be covered over, leaving only a narrow opening for the mercury to run in.

(2) There should be ample light, and the windows of all rooms where mercury vapour is likely to be produced should preferably face the north.

(3) Mercurial processes should be carried on in rooms separate and distinct from the other workrooms.

(4) Any unnecessary raising of the temperature above 60 degrees Fahr. is to be avoided, and consequently there should be no direct heating of the rooms by open fires or stoves.

(5) Mechanical ventilation should be provided, and reliance not be placed merely on differences of temperature between the outside and inside air. Inlets for air should be above the level of the heads of the workers, and the draught of the fan should be a downward suction one.

(6) Workers should wear overalls and head coverings.

(7) Shortness of the hair, shortness and cleanliness of the nails, a proper hygiene of the mouth, and baths would do much to protect the workers. Ample washing conveniences, including soap, nail-brushes, and towels, should be provided.

(8) Meals should be prohibited in any room where mercury is handled.

(*a*) Periodical medical examination with power to the surgeon appointed to suspend temporarily or permanently from work should be instituted.

Hatters furriers' processes.—Reference has been made in the Annual Reports for 1898 and 1899 to the effects of the dilute solution of nitrate of mercury used in the preliminary process of felt-hat making. During the past year a detailed examination of the workers in several of the factories was made, and in January of this year (1901) the circular letter printed on pp. 115–118 was sent to all occupiers, pointing out to them the injury to health caused, and how that injury can be best overcome. The procedure of giving to occupiers such information as the Department possesses of the nature of the injury caused in the manufacture, and the remedial measures held essential for its removal, is appreciated.

The state of the health of the workers and signs of mercurialion among them I found to vary very considerably in different factories. For instance, in one examination of 21 workers, the duration of whose employment varied from 1—17 years, the average being nine years, in only one was slight mercurial tremor present, while seven appeared anæmic; and in another factory of 17 women employed in cutting and locking (the duration of employment being in no case less than 10 years), tremor was present in nine and anæmia in seven. The explanation of the difference in these two cases is to be found not so much in the conditions of work as in the different social condition of the workers—the factory where the health of the workers was found seriously affected being situated in an overcrowded district of London. It indicates, however, the need for medical supervision where bad social conditions so lower the health as to render the workers susceptible in so marked a degree to the effects of mercury.

ARSENIC POISONING.

Seven cases (all females) were reported from a paint and colour works where emerald green was manufactured, and 13 cases (all males) with three deaths resulted from inhalation of arseniuretted hydrogen gas. One other doubtful case was reported in a woman who was said to have used arsenic in brass-polishing. The certifying surgeon believed the latter case to be one of alcoholic neuritis, as the woman confessed to taking beer regularly. It was reported early in June and may have been a case similar to those which occurred so frequently later in the year as the result of consuming arsenical beer. Various samples of polishing-powders were examined by Dr. Thorpe for arsenic, but with negative result.

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Paint and Colour Works.—Early in March information was received from a physician practising near a factory in which emerald green was made that within the past few days he had attended four women working "in the green," whose symptoms were faintness, gastro-intestinal irritation, and a variable amount of headache and dyspnœa.

I visited the factory immediately after and examined all the females—25 in number—engaged in the manufacture of the emerald green. Appended is the result of the examination. It is of interest as showing how rapidly in several of the cases the local effects of arsenical dust are produced and the amount of the discomfort so caused.

Name.	Age.	Duration of Employment.	Symptoms.			Remarks.
			Mucous membrane and Skin.	Gastric	Nervous.	
(1)	16	3 days.	Nil.	Nil.	Nil.	
(2)	20	6 weeks.	Slight eczema corner of right eye. Lips dry. Hoarseness. Says she feels as though she cannot breathe at night.	Sickness.	Nil.	Was absent for a week for sickness one week after commencing work.
(3)	19	6 weeks in the "green."	Very enlarged tonsils.	Vomiting and diarrhœa.	Nil.	Week ago had a fit (is subject to epilepsy). Returned to work a day later.
(4)	16	4 weeks.	Slight eczema round *alæ nasi*. Hoarseness.	During first week had vomiting and diarrhœa.	Nil.	
(5)	20	5 weeks.	Very slight eczema round nose.	Nil.	Nil.	
(6)	20	4 weeks.	Two weeks after commencing work face broke out with rash—could not see, eyes so swollen. At present lips very dry. Throat sore.	Last week sickness and diarrhœa. In bed 2 days. Had eaten fried fish day before she felt ill.	Nil.	
(7)	18	4 weeks.	Nil.	Nil.	Nil.	
(8)	19	7 weeks.	Slight eczema round nose. Says she had a cold before she came to work, with same condition of nose, which has been improved by using vaseline provided.	Nil.	Nil.	
(9)	18	7 weeks.	Forearms red and dry. Otherwise nil.	Nil.	Nil.	
(10)	18	4 weeks.	Slight acneiform eruptions round face.	Nil.	Nil.	
(11)	26	6 weeks.	Face injected. Otherwise nil.	Nil.	Nil.	Absent for three weeks, because of rash on face.
(12)	23	3 days.	Slight acneiform eruption on face and neck.	Nil.	Nil.	
(13)	18	3 days.	Swollen upper lip.	Nil.	Nil.	
(14)	18	3 months.	Anæmia — hoarseness — enlarged tonsils.	Diarrhœa 2 weeks ago.	Nil.	
(15)	21	3 weeks.	Slight cough.	Nil.	Nil.	
(16)	19	3 months.	Slight acneiform eruption on chin.	Diarrhœa for 1 week	Nil.	
(17)	30	3 years. (Not much in "green.")	Nil. (Two years ago she lost her voice at work in the "green," and was out-patient at hospital for 6 weeks.)	Nil.	Nil.	
(18)	20	3 years. (6 months in "green.")	Slight dry eczema on face.	Nil.	Nil.	
(19)	18	1 year.	Hoarseness. Traces of eczema.	Nil.	Nil.	Away for sickness one day.
(20)	22	2 years. (Always in "green" when it is being made.)	Nil.	Diarrhœa 2 weeks ago.	Nil.	
(21)	16	6 weeks.	Eczema round *alæ nasi*, circumscribed, but acute. Traces of eczema at corner of eyes.	Nil.	Nil.	I saw her on 16th, when visiting her sister. There was then lacrymation and eczema at angles of eyes and ears.
(22)	27	Always in the "green" when made.)	Nil. Some pigmentation of the skin.	Nil.	Nil.	
(23)	19	1 week.	Hoarseness. Throat very red and, she says, sore. Ulcer on *septum nasi*.	Diarrhœa a few days ago.	Nil.	
(24)	16	? 4 days.	Acneiform rash on chin and round nose.	Abdominal pain.	Nil.	
(25)	18	6 weeks.	Nil.	Vomiting and pain in left *iliac fossa*. Headache and weakness.	Nil.	Had rash on face 1 month ago.

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In this factory overalls were provided and worn by the workers; precautions were taken to cover over as far as possible bins and shovels used in packing. Bath and lavatory accommodation was provided. The packing in small tins of the green was done under hoods with a fan draught. At the time of my visit the fan was working ineffectively, and this probably accounted for the special incidence of the illness there had been.

The conditions were sufficiently serious to require the occupier to appoint a medical man to examine the hands once a week, and give them the necessary advice as to treatment of the local lesions. This was done, and when the manufacture ceased (it is made only during the winter months) the practitioner appointed wrote saying that there had been great improvement in the condition of the workers, more especially as to the eczematous condition of face and as to cleanliness.

The manufacture of emerald green now depends very largely on the vitality of the Colorado beetle, and of other insects injurious to fruit trees. The dust is in an exceedingly fine state of division and is very light, rendering complete absence of it from the air very difficult.

Poisoning from arseniuretted hydrogen gas.—Thirteen cases with three deaths were reported from two factories—one an alkali works, the other a chemical works where zinc chloride was manufactured. The rarity of this form of poisoning, and the striking character of the symptoms produced by it, require that the circumstances of the outbreaks should be described in some detail.

In April Mr. Arbuckle (South West Scotland) forwarded a report from the Certifying Surgeon in Irvine, Ayrshire, on a supposed severe case of phosphorus poisoning in a man engaged in cleaning out a Weldon chlorine still. The symptoms were "constant vomiting, coppery jaundice, lividity of the body, the mucous membrane of lips almost black, suppression of urine—what little was drawn off consisting almost of blood.

Mr. Arbuckle's report is as follows:—

> On March 30th, W. E., general labourer and cleaner out of stills, in the employment of Messrs. ———, chemical manufacturers, for 18 months, was instructed to clean out a Weldon chlorine still, made of Yorkshire stone, about 12 ft. wide and 10 ft. 6 in. deep. The still had a manhole on the top 2 ft. in diameter, but no other manhole at the bottom or side, the only other inlets being two 6 in. openings, one on the top the other near the bottom, used for filling the still. This still had been at work up to 6 p.m. on the evening of the 29th March, when it was emptied and steam blown through till 12 midnight. On the morning in question, at 7 a.m., the man got a respirator, composed of 15 folds of double ply flannel bound round his mouth having his nostrils free. He worked for about 20 minutes. When he came out he said his mouth tasted very sweet—his complexion turned yellow shortly after coming out. Afterwards he became sick and went home to bed. . . . The still is filled, when working, with hydrochloric acid, and manganite mud in sufficient quantity to decompose the charge and drive off all chlorine. This goes on for three weeks at a time. The still is then emptied for cleaning, the residue to be cleaned consisting of sulphide of lime and a little H Cl. The still, when emptied, is generally hot through the action of the steam. The companion of the man, G. E. (who finished the cleaning out of the still), was also taken ill and suffered from suppression of urine. Previous to the suppression he noticed that his urine was high coloured—he had some jaundice, frontal pains in the head, and had to remain in bed for five days. He is now recovering. The foreman over these stills lost his son in February last under somewhat similar circumstances. . . . I have suggested to the firm that manhole doors ought to be fitted in the bottom of these stills so as to secure effective ventilation, and that the respirators should cover the nostrils as well as the mouth.

The man died on the sixth day, latterly having had much haematemesis. He remained conscious until half-an-hour before death. A post-mortem was made by Dr. Lindsay Steven, of the Royal Infirmary, Glasgow, but beyond the jaundiced colour of the skin there were no naked eye signs of disease in the vicera. Microscopically, however, sections of the liver and kidneys showed marked disintegration of the blood corpuscles.

As the symptoms were typical of arseniuretted hydrogen poisoning, and as both the Certifying Surgeon and Mr. Arbuckle had stated that no phosphorus had ever been used in the works, I visited the factory on April 20th. The still in question had been cleaned out on an average once every three weeks for the last 25 years, and previous to this year no illness had been traced to it. It differed from most similar stills in not having a trap-door at the foot through which the residue could be discharged outside. Instead, the

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residue was placed in a bucket and drawn up through the manhole at the top. I was informed by Mr. Curphey, alkali Inspector, that stills are constructed with trap doors on either side so that the residue can be raked out without anyone having to enter the still.

The Weldon mud "acid calcium manganite" a mixture of manganites of calcium and manganese are run into the still which is filled to a height of two feet with hydrochloric acid. After the chlorine has been evolved the manganese chloride liquor is withdrawn, but a certain amount of residue remains behind consisting partly of calcium sulphate which has to be removed by entering the still. It seemed to me that in the case of arseniuretted hydrogen poisoning there was a source for the production of the gas in the arsenic present in the hydrodchloric acid made on the premises from the pyrites. Samples of the liquor containing the residue, and also a sample of the hydrochloric acid as used in the still were taken to determine the amount of arsenic, and, in the liquor, containing the residue, the amount of free acid present. My idea was that something which when acted on by the free acid would generate nascent hydrogen had got into the still and had collected there during the night. The man, therefore, who entered the still first and disturbed the residue would get the full dose of such arseniuretted hydrogen as had been developed. I also brought away with me small portions of the stomach, lungs, liver, kidney, and spleen which had been taken away at the post-mortem by Dr. Lindsay Steven, pathologist to the Royal Infirmary, Glasgow, for microscopical examination.

The samples were handed to Dr. Stevenson, of the Home Office, and the following report was received from him:—

I have to report that on the 1st May, current, I received in person from you—

(A.) An 8 oz. glass bottle containing liquid with deposit, stated to be the residue and liquid from a Weldon Chlorine Still in Messrs. . . . Works, Irvine, Ayrshire;

(B.) An 8 oz. glass bottle, stated as containing the hydrochloric acid used in that still;

(C.) A glass jar stated to contain some portions of the viscera of a man, employed in and about the still, and a formaline liquid in which the viscera were preserved.

I have submitted to analysis the contents of these vessels A, B and C.

(A.) Contained yellow liquid with grey deposit, the deposit filling about two-thirds of the bottle. The liquid was such as would be formed in a chlorine still, and consisted of a solution of impure chlorides of manganese and calcium of specific gravity of 1·179. The deposit was a mixture of impure sulphate of lime and grit. The liquid was arsenical, and the arsenic present was in the form of the higher oxide of arsenic—arsenic acid.

The following are the proportions of the important constituents expressed in percentages by weight, and also in grains per gallon of the liquid:—

	Per cent.	Grains per gallon.
Arsenic acid ($H_3 AsO_4$)	0·45	315
Equal to arsenicum (metallic arsenic) ...	0·24	168
Hydrochloric acid	7·61	5,327
Uncombined chlorine	0·03	21
Ferrous salts (protosalts of iron)	none	none
Ferric chloride	0·17	119

The liquid gave off hydrogen and arseniuretted hydrogen gases slowly when iron was immersed in it, when zinc was immersed in it, those gases were given off more quickly, and when both zinc and iron were placed in it the same gases were given off still more

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quickly. It would be a dangerous operation to immerse zinc or iron implements in this liquid in an imperfectly ventilated still into which men entered. The risk to life would be great.

(B.) Contained about one-third of a pint of yellow impure solution of hydrochloric acid, of specific gravity 1·165, which was arsenical, and the arsenic present was in the form of the lower oxide of arsenic—arsenious acid. The composition of this liquid was :—

	Per cent.	Grains per gallon.
Arsenious acid ($As_2 O_3$)	0·292	204·4
Equal to arsenicum (metallic arsenic) ...	0·221	154·7
Hydrochloric acid	31·021	21714·7
Uncombined chlorine	0·042	29·4
Ferrous salts (protosalts of iron)	none	none
Ferric chloride	0·005	3·5
Sulphate of sodium...	traces	traces
Water	68·040	
	100·000	

This is a crude example of hydrochloric acid, and highly arsenical. It evolved, when iron or zinc was placed in it, arseniuretted hydrogen rapidly and abundantly. I am not aware what is the usual amount of arsenic present in the hydrochloric acid used in chlorine stills, but I find this acid to be very much more arsenical than the crude acids of commerce.

(C.) The viscera of the deceased were much shrunken and deprived of water, by their preservation in a solution of formaldehyde (strength in formaldehyde 4 per cent., 10 per cent. of commercial formalin).

The viscera were :—

	ozs.
The stomach	2¼
Portion of liver	3¼
„ spleen	½
„ a kidney	1½
„ heart	1¼
„ lung	1
„ brain	1¼
	11

I estimate that these portions would represent at least 24 ozs. of fresh viscera.

The liquid in which the viscera were immersed contained a minute quantity of arsenic equal to $\frac{1}{2000}$ grain (0·0005) arsenicum.

The viscera themselves were more arsenical than the liquid. The mixed viscera contained $\frac{1}{350}$ grain (0·0028) arsenicum. Assuming that the arsenic was uniformly distributed through the body, and that the deceased was a man of average weight, the whole body would have contained 0·28 grain (rather more than a quarter of a grain) arsenicum.

1½ grain of arsenicum in the form of white arsenic taken by the mouth, has caused the death of an adult, and less than half the amount has, in my experience brought life

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into great peril; 2 cubic inches of arseniuretted hydrogen gas contain 1½ grain arsenicum. Arsenic is quickly eliminated in the excretions. I am of opinion that the presence of arsenic in the viscera is quite consistent with death from arsenic, the man having survived two days.

The symptoms of the deceased man, as detailed to me by you, are those of poisoning by inhalation of arseniuretted hydrogen; and the facts of the analyses point to the same conclusion.

One other point demands an observation: the arsenic in the viscera could not have been caused by their immersion in the arsenical liquid. I have found commercial formaldehyde to be free from arsenic; and had that used been arsenical, it could not have imparted nearly all its arsenic to the viscera. The presence of five or six times as much arsenic in the viscera as was present in the liquid in which they were immersed points to the abstraction of traces of arsenic by the liquid from the viscera.

At the enquiry held in Ayr on June 1st, under the Fatal Accidents Inquiry Act, objection was taken by the solicitors representing the firm and the insurance company with whom the firm were insured against accidents to the production of this report, and the cause of death was brought in by the jury as "death from poisoning contracted in the course of his employment," but they would not particularise as to the precise nature of the poisoning. In this unsatisfactory verdict the case ended. It seemed likely at one time that the case would have come up again in the law courts, either under the Employers' Liability Act or Workmen's Compensation Act, and the question would no doubt have been raised whether poisoning of this kind could be brought within the definition of an accident, but the matter was compromised.

Dr. Glaister, Professor of Forensic Medicine and Public Health in the University of Glasgow, who saw the man prior to his death, found traces of arsenic in a small quantity of urine drawn off soon after the attack commenced.

The firm never admitted that the deaths were other than from natural causes, but they took steps by the substitution, as far as possible, of wooden utensils in the cleaning out of the stills for the metal ones previously used to render the recurrence of such a fatality impossible.

In the manufacture of bleaching powder some thousands of Weldon Chlorine stills are in use, and on no previous occasion has a fatality similar to this been recorded. It is only right to say that chemists of the highest repute, even after this occurrence, refused to believe that arseniuretted hydrogen gas could have been evolved under the conditions existing in the still.

The following is a report on the 10 cases of arseniuretted hydrogen poisoning in August by Dr. J. S. Clayton, Certifying Surgeon for the district of Accrington :—

This investigation into the circumstances attending ten cases of acute poisoning by arsenetted hydrogen, which occurred at a chemical works in this neighbourhood in August last, was made at the request of the Medical Inspector of Factories for further detailed information than was contained in the usual notification of such cases.

The process in which the men were engaged was the manufacture of zinc chloride from crude zinc oxide and hydrochloric acid. The zinc oxide was a waste material obtained from galvanising iron, and was, in fact, a galvanizer's refuse. The HCl was made on the premises and admittedly contained arsenic. Unfortunately the firm made no quantitative analysis of these crude materials, but their chemist informed me that a sort of examination was made of both as is their usual custom, sufficient to show them that less than 0·1 per cent. of As. was found in the HCl, and much less than that in the Zn 0, so little in fact as to make the quantity impossible to determine. They also stated that so far as they themselves knew no other cases of As H_3 poisoning had occurred during the 20 years that this Zn Cl process had been going on. That other cases have from time to time occurred is, however, quite certain, very decided information on this point being obtainable from the medical practitioners in the district, though of a less intense character, and only in isolated cases.

There is a vat about five feet square at one end of a platform, six yards by four, raised about four feet from the ground. From this platform and at the opposite end and five yards from the vat is a gangway running to the ground. The platform and vat are in the open air, as is also the ground to which the gangway runs, with this exception, that over the ground part, and about 15 feet above is a sloping roof about three feet wide from the wall of the building outside which this process is conducted for the purpose of affording some shelter from rain to

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the men beneath. This part, which is a sort of a well, is therefore open to the air, with the exception of having the platform in front and the ledge over part of it above. The idea is that any noxious fumes which may be generated may thereby be readily carried away. There is a doorway leading from this well into the building through which material is brought to the vat, and near by, about 10 to 15 yards distant and inside the building, is a furnace. The hydrochloric acid runs direct from a cistern in the adjacent building into the vat by means of a trough. The zinc oxide is emptied from bags into the cistern by men on the spot. These bags are brought from the ground of the well below and up the gangway to the vat by other men.

On this occasion it appears that the men, for some reason, were eager to get through a certain amount of work by noon, and two or three extra hands were taken on. The vat was kept well going, and more fumes than usual may have been evolved. The day was warm and unusually sultry. The fumes would not get away, and as the crude zinc oxide probably had mixed with it a small quantity of zinc carbonate, from which Co_2 would be evolved, the tendency of the gas would be downward, As H_3 itself being heavier than air. In addition to this tendency, there would undoubtedly be the powerful indraught exerted by the furnace through the open door. Instead of this free access to the air being a security on this occasion it constituted a danger. As a matter of fact, the men working nearest to the vat on the platform, and furthest from the well suffered least, those down below in the well the most. Of those on the platform there were three. One was severely poisoned, one slightly, and the third escaped entirely.

With respect to the remainder, four men were engaged shovelling zinc oxide from a cart on to the ground area, and were at no time within ten yards of the vat. All of these suffered more or less severely, and three others were occupied in loading barrows from this and conveying it up the gangway to the vicinity of the vat. These also were poisoned severely, one with a fatal termination on the seventh day.

The symptoms in the ten cases here referred to were characteristic throughout, with the exception of one man who appeared to have absorbed a very small quantity of the gas, and who was correspondingly slightly affected. It is only necessary to quote one case as typical of the series, that of the foreman, who was engaged in emptying bags into the vat, and who was the most seriously affected of those at the vat. He was a robust powerful man, and had been engaged at this particular work for 16 years. If there can be such a thing as immunity to As H_3 he should have afforded an example. He had been at work there all the morning and left his work at 2 p.m. At 2.30 he felt sick nauseated and depressed, with a hot burning pain from his throat to his stomach, and with an intense thirst, this was soon followed by violent vomiting, at first of food, then of everything as soon as swallowed, even iced water. This again was followed by an equally severe diarrhœa, first of loose fæcal matter, then of rice watery discharge, and finally contained blood. Added to this there was haemoglobinuria and a rapid developing jaundice, which within 24 hours assumed an intense coppery hue. As is usual in these cases, and without any knowledge of the surrounding circumstances and the obvious cause, a diagnosis of cholera would have been pardonable within the first 12 hours. The whole effect was that of an irritant poison taken by the mouth, being evidence that the arsenic in the gaseous state was absorbed by the blood direct from the lungs, and in its passage through the walls of the stomach being separated there and acting directly. Doubtless also some may have been swallowed in the saliva. The feeling of depression deepened into extreme prostration, the features were sunk and cyanosed, the pulse thready, and the voice lost. These severe symptoms lasted, with gradually diminishing severity, for several days. The feeling of prostration, the anæmia, the almost pale green colour of the skin which supervened on the disappearing jaundice, lasted for several weeks longer, and it was only after the lapse of five weeks that he was able to return to work.

In the one fatal case the symptoms showed no variation from the above, excepting that there was no tendency to recovery; towards the close there was suppression of urine, and after 36 hours of complete unconsciousness he died on the seventh day.

In all of these cases there was jaundice, in eight of them it was intense, in two only could it be described as slight. In nine also there was hæmaturia. Intense thirst and a burning pain in the chest characterised the onset and earlier stages of all the cases, dirarrhœa was troublesome in five, and all the cases, with the single exception referred to, suffered from profound anæmia in the later stages of the disease. The effect on the nervous system was more or less severe in nine, in six of these the prostration and collapse of the earlier stage was very severe.

One man who was engaged with these ten, and who was on the platform nearly the whole time, escaped without any symptoms whatever, and the varying degrees in which they were affected would seem to indicate that individual susceptibility played an important part. The man who died could not have been described before this as a good life. He had been a heavy drinker, and the effects of chronic alcoholism no doubt militated against any tendency to recovery.

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SYMPTOMS (in order of occurrence).	(1.) Fatal.	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)
Burning pain in chest, stomach, and lungs, &c.	Yes.	Yes.	Yes.	Complained of some.	Yes.	Yes.	Yes.	Yes.	Yes.	Yes.
Depression and languor, coming on shortly after leaving work.	Yes.	Yes.	Yes, but not severe.	Doubtful.	Yes.	Yes.	Yes.	Yes.	Yes.	Yes.
Vomiting	Yes.	Yes.	Some.	No.	Yes.	Yes.	Yes.	Yes.	Yes.	Yes.
Thirst	Yes.	Yes.	Yes.	Yes.	Yes.	Yes.	Yes.	Yes.	Yes.	Yes.
Hæmaturia	Yes.	Yes.	Yes, some.	No.	Yes.	Yes, within a few hours.	Yes.	Yes.	Yes.	Some.
Suppression of urine	Yes (last 36 hours complete).	No.	No.	No.	No.	No.	No.	No.	No.	No.
Diarrhœa	No; constipated.	No.	No.	No.	No.	No.	Yes.	No.	Yes.	No.
Jaundice	Very severe.	Very severe.	Slight.	Very slight, if any.	Severe.	Severe.	Yes.	Yes.	Yes.	Yes; slight.
	Had attack of jaundice some years ago, before engaged on this work. He was otherwise a bad life, being a chronic alcoholic. Duration of illness 7 days.		Both these cases were mild.			Also very marked tachycardia pulse for three days, 130 and over, and insomnia.				This case not severe. As the poisoning occurred on Saturday morning he returned to work on Monday and continued at it.

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The recorded cases of industrial poisoning from arseniuretted hydrogen gas in this and other countries are very few. I have only been able to trace the following :—

(1) Two cases, of which one proved fatal, about the year 1889, in Wolverhampton, in a process for the recovery of ammonium chloride from the flux skimmings of galvanizing baths.

The composition* of the skimmings which was made by Mr. Jones, the County Analyst, is as follows :—

Chloride of zinc	41·62
Oxide of zinc	32·53
Chloride of ammonium	13·00
Silica	1·15
Oxide of iron	2·55
Tin	Traces.
Arsenic	
Lead	
Water	9·15
	100·00

Two tons of skimmings were placed with 400 lbs. of lime in a boiler containing water. Heat was applied to this mass by steam, and to prevent caking a rotating shaft with agitators ran through the length of the boiler. On the day of the accident the mass had caked, and two men went into the boiler, through a small manhole, with picks. They came out shortly afterwards, and on the next day developed coppery jaundice. At the inquest on the one case, Dr. MacMunn, who had examined the blood, gave evidence that death was due to arseniuretted hydrogen gas. The process has long been given up. There has been no suspicion of this form of poisoning in the extensive galvanizing industry in the district, attributable no doubt to the fact that the operation is usually done in open sheds.

(2) Dr. J. H. Martin† describes a fatal case, the symptoms being jaundice, hæmoglobinuria, and vomiting, which occurred to a foreman in a chemical works in Blackburn, who had been engaged for half-an-hour in pouring ten carboys of commercial hydrochloric acid over one ton of spelter. Arsenic was found in the acid and zinc used.

(3) Dr. W. L. Gulewitsch,‡ of St Petersburg, describes a non-fatal case which occurred to a man engaged in dipping a copper and zinc plate into a mixture containing arsenious acid, sulphuric acid, and hydrochloric acid and water.

(4) Dr. Dixon Mann and Dr. Gray Clegg§ narrate an investigation into five cases of arseniuretted hydrogen poisoning arising from the dissolving of a considerable quantity of zinc in hydrochloric acid. The acid contained 0·309 per cent. of metallic arsenic and zinc, and the zinc also contained arsenic in small amount. The accident was due to the enormous amount of arsenic present in the acid, which converted the hydrogen given off during the dissolving process into AsH_3. Three of the five cases proved fatal. Chemical examination of the viscera yielded the following results :—In case 1 arsenic was found to be present in the liver, kidneys, bile, urine, and blood, and in the fluid from the pericardium and pleura. In the liver only was the amount sufficient to enable a

* Effluvium Nuisances. Dr. Ballard, p. 242.

† "Medical Chronicle," 1893.

‡ "Zeitschrift für physiologische Chemie," Vol. 23–24, p. 511, 1898.

§ "Medical Chronicle," 1895.

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quantitative estimation to be made; it equalled ·002 gramme As_2O_3 for the entire viscus. In case 2 arsenic was found in the liver, kidneys, and in the spleen. In 37 c.c. of blood and serum not a trace of arsenic could be found. From the liver the amount of arsenic obtained equalled ·0016 grammes As_2O_3.

They go on to say:—

> The published cases of poisoning by AsH_3 comparatively few in number, have been tabulated . . . . completing a list of 49 cases, which it is believed includes all cases published up to the present time. Many of these cases occurred in groups; in three instances 2 persons, in two instances 4 persons, in two other instances 5 persons, and in one instance 9 persons were simultaneously poisoned by the inhalation of AsH_3 from a common source. The remaining cases were of isolated occurrence. All were of accidental occurrence. Thirty-one cases, of which 11 died, were due to the inhalation of AsH_3 in trade pursuits; 10 cases, of which 6 died, from the incautious performance of chemical experiments; 8 cases, of which one died, were caused by the inhalation of hydrogen for the purpose of repeating Tyndall's well-known experiment of thus altering the timbre of the voice; in all the rest its presence was due to unsuspected contamination of the zinc or of the sulphuric acid or hydrochloric acids employed.
>
> The onset of the symptoms in some cases was immediate, in others not until 8 or 10 hours after the gas was inhaled. The earliest period at which death occurred was on the second day, the latest on the thirtieth day. The limit of survival, except in two cases, did not exceed ten days. In 36 out of the total number of cases hæmoglobinuria or hæmaturia was present; in many of the other cases no mention is made of the appearance of the urine. In 8 cases there was anuria; of these 5 died. In 37 cases the skin was jaundiced. In 34 there was retching or actual vomiting; in some instances the vomit contained blood. In all cases in which the red blood cells were counted they were found to be greatly below the normal number; in one case they were diminished to 920,000 per cubic millimetre.

The number 49 which Dr. Dixon Mann mentions as that recorded when he wrote his paper would, with the additional cases which have been mentioned, be raised to 65.

PHOSPHORUS POISONING.

The Lucifer Match Works.—The objections raised by the manufacturers of lucifer match works in which white or yellow phosphorus was used to the Special Rules served by the Home Office in November, 1899, was referred under s. 8 (4), 1891, to Mr. Chester Jones, and the arbitration was held on March 2nd, 5th, 6th, and 30th.

The rules as amended by the arbitrator represent considerable advance upon the former conditions. The principal modifications that the rules as proposed by the Home Office underwent are:—

(1.) Relaxation of the requirement of special ventilation for the boxing of wax vestas and of matches thoroughly dry, on the ground that there was little or no evidence that phosphorus necrosis had ever arisen to a person engaged in the boxing of dry matches. For a similar reason in the case of persons thus employed the requirement of periodical dental examination was dispensed with.

(2.) An initial examination by the dentist was considered unnecessary. In view of the fact that necrosis hardly ever develops except after several years employment, the risk of a person contracting this disease within the 28 days allowed prior to the dental examination is negligible.

(3.) As originally proposed, the rules prescribed a periodical medical examination by the Certifying Surgeon every three months. The need for selection in the case of persons to be employed in phosphorus processes was regarded as the point of most importance, and this has been largely secured by requiring in the case of all persons to be thus employed an initial medical examination.

It is satisfactory to know that perhaps the greatest difficulty of all raised in connection with the rules, a point not referred to in either the original or amended code, namely, the subject of dental treatment, has been solved in the most important factories

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by the occupier undertaking to defray the cost of such dental treatment as the dippers, &c., might require at the hands of the appointed dentist in order to be considered fit for work.

Since the service of the rules seven of the smaller firms have either ceased working or have notified their intention of doing so shortly, and two continue the manufacture of lucifer matches, but with a strike-anywhere non-poisonous substitute. In connection with one of the substitutes my attention was called to the occurrence among those engaged in manufacturing it of severe conjunctivitis, œdema of the eyelids, and of eczematous eruptions, which, however, disappeared after some months acclimatisation.

I append particulars of the three cases which were reported during the year. One reported case was excluded from the published return. The following are the facts about it. They illustrate the need there is of not too hastily diagnosing phosphorus necrosis:—

A dipper commenced work on March 27th, 1900, in a factory in Belfast, and on May 21st he complained of toothache. A tooth was extracted, and three days later he appeared to be quite well. He returned to work about July 1st, and on the 16th a small nodule of bone about the size of a pin's head was noticed—the gum was red and congested, and there was more or less pain in the jaw. He was suspended from work, and almost immediately after was arrested and imprisoned for "party expressions and other disloyal words." On August 24th he was released, the medical officer of the prison reporting that the little speck of discolouration had almost disappeared, and there was no ulceration whatever.

Reported Cases of Phosphorus Necrosis in the year 1900.

No.	Sex.	Occupation.	Severity.	Duration of Employment.	Symptoms.	Remarks.
1	F.	Cutter down and box filler.	Not severe ..	5 years.	Necrosis of alveoli of 1st and 2nd lower molars on left side.	Had been under treatment by dentist for about six months—a bicuspid tooth had been removed and some exfoliation of bone followed—the two molars became involved later.
2	M.	Taking frames from stoves.	Severe ..	36 years.	Necrosis and exfoliation of both superior maxillæ.	—
3	F.	Cutter down and box filler.	Severe ..	18 years.	Necrosis of right inferior maxilla.	—

ANTHRAX.

In Wool Combing and Wool Sorting.—Nine cases with two deaths occurred in these industries, of which eight were contracted in the Bradford district. This number is less than one-half that reported in the previous year. Too much importance must not, however, be attached to this diminution, as anthrax, unfortunately, is notoriously prone to occur with greater frequency in one year than in another. The Special Rules for wool combing, which came into force in April,* appear to be working satisfactorily, due in a large measure to the method of their inception, namely, conference between representatives of the Bradford Chamber of Commerce, of the Bradford and District Trades and Labour Council, and of the Factory Department.

The following table gives particulars of the cases of anthrax connected with the woollen industry during the year, in continuation of a similar table in the Annual Report for 1899.

* *See* Annual Report for 1899, pp. 57 and 58.

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Cases of Anthrax reported between January 1st and December 31st, 1900, in the Woollen Industry.

No.	Sex.	Age.	Industry.	Precise Occupation.	Severity.	Situation.	Kind of Wool.	Remarks.
1	M.	58	Wool combing ..	Card jobber ..	Fatal	Cellulitis of thorax and neck.	? Camel hair ..	Employed at machine which manipulated English and Colonial wool, except for six hours a few days before contracting the disease, when he was employed on camel hair in foreign department.
2	M.	31	Wool combing ..	Spring box minder.	Fatal	Internal pneumonia.	? Camel hair ..	Employed on English cross-breeds, except for about seven hours a few days before he contracted anthrax, when he worked on camel hair.
3	M.	30	Mohair combing	Card jobber ..	Severe ..	Pustule on forehead. *Symptoms*—Œdema of head, face, and neck.	? Van mohair	Man was engaged on van mohair as a card jobber at a carding engine. The wool worked had been steeped, washed, dried, and broken up before being treated by him. The wool is in the bale when delivered to the foreman of the wool combing department in which the patient worked. It is lifted by hand crane into a steeping tank containing boiling water. After being steeped for an hour it is taken out, opened, and put through the wash-bowl, then conveyed to drying machine, and afterwards to the carding room to be carded, where the patient was employed as a card jobber.
4	M.	48	Wool sorting ..	Overlooker ..	Slight ..	Papule on left forearm, followed by brawny œdema.	Turkish mohair.	—
5	F.	38	Wool combing ..	Gill box minder at preparing machine.	Severe ..	Pustule on face.	Turkey mohair	The wool had been opened, washed in three different bowls, and then three times in clear water, dried, and brought to the preparing room. The preparing room is one of the finest in the kingdom—large, lofty, airy.
6	M.	64	Wool combing ..	Wool carder ..	Moderate ..	External ..	Persian.. ..	The wool had been opened, washed at temperature of 130° Fehr., carded, back-washed, combed, and finished. He attended three carding machines, at one of which, 11 months previously, a man contracted anthrax and died.
7	M.	36	Wool combing ..	Carding overlooker.	Severe ..	Gangrenous pustule on nose.	? Russian ..	—
8	M.	21	Wool combing ..	Wool stooper ..	Moderate ..	Dark coloured pustule, ¾ × ½ inch, with vesicles around on forearm, redness and swelling of arm.	—	Doubtful case. Anthrax bacilli not found.
9	F.	38	Carpet manufacture.	Carding overlooker.	Severe	Lower eyelid.	Persian—a little East Indian.	—
10	F.	15	Blanket manufacture.	Weaving at loom	Mild	Forearm ..	Persian — East Indian.	Factory not under Special Rules. Only a very little of the wool is washed before use. The Persian is very dusty, the dust being removed in a "shaker" provided with a fan.

In Horsehair and Bristle Factories.—The subject of anthrax in these factories demanded considerable attention during the year, the incidence of the disease on the industry having been greater than in either the woollen industry or the trade in hide and skins.

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The following is a tabular list of the cases reported in 1899 and 1900 :—

Cases of Anthrax contracted in the Manipulation of Horsehair in the Years 1899 and 1900.

1899.

No.	Sex.	Age.	Process.	Kind of hair.	Situation.	Remarks.
1	M.	23	Hair drawer ...	Various	Neck	Fatal.
2	M.	29	Hair curler ...	—	—	
3	M.	15	Weigher out ...	Russian, &c. ...	Chin.	
4	F.	28	Hair drawer ...	S. American ...	—	
5	M.	42	Hair curler ...	S. American ...	Jaw.	
6	M.	62	Hair curler ...	Various	Neck.	
7	M.	48	Mat maker ...	Horse and pig's hair.	Forearm ...	Infection supposed to have been conveyed by daughter — a hair drawer.
8	M.	17	Hair carder ...	China manes ...	Chest	Infection attributed at first to old dust on carding machine.
9	M.	17	Hair carder ...	China manes ...	Face	
10	M.	17	Mat maker ...	Foreign	Neck	Infection supposed to have been conveyed by wife—a weaver.
11	M.	17	Hair carder ...	China	Neck	Fatal.
12	F.	18	Hair sorting ...	China manes ...	Neck.	
13	F.	17	Hair sorting ...	China manes ...	Neck	Fatal.
14	M.	45	Hair mixer ...	China manes ...	Forearm.	
15	M.	17	Carrying dyed hair.	China manes ...	Cheek.	
16	M.	64	Hair curler ...	China manes ...	Neck	Fatal.
17	M.	15	Hair curling ...	Siberian tails ...	Neck.	
18	M.	50	Engineer (carding room).	English cow hair	Forearm ...	Knocked his forearm against a willey machine.
19	M.	35	Emptying sacks	Siberian tails ...	Head.	

1900.

No.	Sex.	Age.	Process.	Kind of hair.	Situation.	Remarks.
1	M.	16	Carding	Various	Neck.	
2	M.	34	Warehouseman	? English ...	Cheek	Sample of suspected English was examined bacteriologically, with negative results.
3	M.	28	Dressing horsehair.	Chinese	Neck.	
4	M.	14	Weighing out ...	Chinese and Russian.	Cheek.	
5	M.	14	Sorter and drawer	? Australian ...	Eyelid.	
6	F.	16	Yarn winder ...	Chinese and S. American.	Neck.	
7	F.	17	Carding	Russian and S. American.	Forehead.	
8	F.	50	Carding	A little Chinese, and Russian mixed with undyed American grey hair.	Cheek	Fatal
9	M.	45	Vanman	Ditto	Neck.	
10	M.	38	Cocoanut fibre drawer.	China horsehair in workshop.	Eyelid.	

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Connected with Horsehair.

No.	Sex.	Age.	Process.	Kind of hair.	Situation.	Remarks.
11	F.	19	Stuffing boxing gloves.	Not known ...	Neck.	
12	M.	18	Brushmaking ...	Not known ...	Forehead.	
13	M.	28	Brushmaking ...	Foreign pig's bristles.	Neck	Fatal.
14	M.	18	Brushmaking ...	Siberian tail hair	Neck	Fatal. Undyed hair traced to horse hair factory in Suffolk.
15	F.	24	Duster and cleaner	Traced to same material as in 8 and 9.	Internal	Fatal.

Five of the cases (7), (8), (9), (14), and (15) occurred in Glasgow, where no case of anthrax had been known to have occurred in connection with horsehair since the well-known cases described by Dr. Russell in the Medical Officer's Supplement to the Annual Report of the Local Government Board, 1878.

The investigation of the cases illustrates the difficulty of discovering the precise source of the contagion. In the case of (7) the person attacked attended a mixing machine where only dry cleaned and dyed hair was worked. Ten days before her employment here, she had worked in another horsehair factory, and had to clean American pig hair direct from the bales—material to which ordinarily very little suspicion attaches. Cases (8) and (9) occurred to persons in a horsehair factory where Chinese horsehair principally, and a little Russian, was manipulated. The man (9), carried the bales on his shoulder, but the fatal case occurred to a woman who, apparently, never came in contact with raw hair, but with hair after it had been boiled and stoved. She appears to have been of exceedingly intemperate habits, which predisposes greatly to a fatal issue in anthrax. The connection of these two cases with the fatal case (14), a person employed, not in a factory, but in the show-room of an upholsterer, was brought out by the Certifying Surgeon, Dr. Alex. Scott, in the following interesting report:—

The following notes of the illness were obtained from the patient's mother.

On 13th September, at 5.30 a.m., the patient (who had always enjoyed good health) had a distinct rigor, and about two hours thereafter her mother endeavoured to induce perspiration, but failed. She complained of violent headache, and general malaise. Next day (14th), she vomited what is described as bilious matter, and lay on the sofa nearly all day. On the 15th she complained of a swelling of the left cheek, but it was not accompanied by pain. To reduce this swelling, her mother applied hot fomentations, and, when doing so, noticed a small boil, or pimple, below the malar bone. This pimple seemed to her insignificant, and not unlike what she had at times observed on her daughter's forehead (Acne, ?). Next day (16th) the patient was extremely restless, and vomited continuously. The swelling increased to an alarming extent, involving the whole of the left side of the face and neck. Actual pain was still absent. On the 17th the swelling was hard, brawny, and painful. For the first time a medical practitioner visited and examined the patient, and he noticed that the swelling now involved the upper part of the chest. The temperature was normal. I may here note that he enquired very carefully regarding the patient's occupation, and whether she was in the habit of handling hair. He prescribed soporific powders. On the 18th and 19th her pain was not so severe; she lay quiet, depressed, and uncomplaining. Next day (20th) the patient suffered intense pain, for the first time, in the epigastrium and abdomen, and gradually became more and more collapsed. On the morning of the 21st she was removed to the Belvidere Hospital, where she died three hours thereafter.

Belvidere Hospital.—For the following notes I am indebted to Dr. McClure the Senior Assistant.

Condition on admission.—The pustule on the left cheek now measured 2½ inches across. The temperature was normal. Patient in a state of almost complete collapse. Pulse practically uncountable, and respirations sighing.

Bacteriological and Post-mortem Report.—Scrapings of the pustule during life showed typical anthrax bacilli. Within twenty-four hours after death a post-mortem examination was made, and cultures of anthrax bacilli were obtained from peri-cardial fluid, ascitic fluid, spleen and heart muscle. Malignant pustules of large size were found in the stomach, while numerous smaller ones were found in the intestines. It is interesting to note in connection with the presence of these pustules in the stomach and intestines that her brother voluntarily stated that patient was in the habit of chewing hair.

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Investigation at Workshop.—This young woman was employed by Messrs. ——, upholsterers, Glasgow, and her duties consisted in dusting the furniture—chiefly office desks—and sweeping the floor of the third flat of their warehouse. She had been engaged at this work for eight months, and had never been employed elsewhere.

The flat is divided into two departments—the showroom in which the girl was employed and a workroom in which men stuffed mattresses with horsehair. The material used in this workroom was conveyed by a hoist and carried from the landing through this showroom. The workroom was light and well ventilated, and the men entered and left by a common stair. At frequent intervals throughout the day large quantities of horsehair were carried from the hoist to the workroom, and, owing to its loose nature, the carpet in the showroom was unavoidably littered thereby. This condition naturally compelled the girl to sweep this part of the carpet twice or thrice every day.

Source of Supply of Hair.—Mr. Stewart very kindly allowed me to examine his workroom journal, from which I noted that consignments of hair had been received from Messrs. —— (the firm on whose premises cases 8 and 9 occurred), on the following dates :—

Monday, 10th September;
Saturday, 8th „
Friday, 7th „
Monday, 3rd „

Conclusions, &c.—

(1.) That I. C. died from anthrax.

(2.) That the disease was contracted while engaged at her usual occupation.

(3.) That infection was carried by horsehair.

(4.) That the infected hair must have been carried through the department between the 3rd and 10th of September.

(5.) That the hair was apparently supplied by Messrs. ———.

(6.) That greater attention ought to be given to secure perfect cleanliness among the girls in this department.

The fatal case (14) occurred to an inmate of the Blind Asylum, Glasgow, employed as a brush maker. From the remainder of the material upon which the man worked anthrax was cultivated by Dr. Andrew (assistant to Dr. Chalmers, the medical officer of health), who investigated with great care all the cases which occurred at the time. The consignment of infected bristles had been sent from a horsehair factory in Suffolk, and investigation at this factory showed that the bristles consisted of Siberian tail hair, undyed, but cleansed (1) by washing in cold water, (2) passage through a warm solution of soda, and (3) heckling and " drawing " into varying lengths. No suspicion of anthrax, so far as could be learnt, attached to any of the material, and certainly no person manipulating the hair in this factory contracted anthrax. Brushmakers, it appears, prefer to have the material undyed.

Although these five cases exhaust the number in which anthrax infection occurred to workers from horsehair, at least three other cases came to the knowledge of the health department in Glasgow among horse slaughterers, and it is a question whether the anthrax in the horses may not have been due originally to the refuse dust from horsehair factories used in the fields as manure.

Included in the cases for the years 1899 and 1900 are three from one factory in Somersetshire. So far as medical knowledge in the district (extending over 35 years) goes there has been no reason to suspect that similar cases in the past have been overlooked, although an outbreak of anthrax in cattle had been, several years ago, attributed to pollution of the streams from the factory. Case (6) occurred to a worker in a factory where suspected material, such as China and Siberian manes, were all passed through a Washington Lyons steam disinfector before being manipulated; but a sample of dust from under the machine through which disinfected Chinese hair mixed with South American hair (not disinfected) had been passed contained anthrax.

In May last the circular letter printed on p. 113 was sent to manufacturers dealing in untreated horsehair, and in several of the factories the means suggested have been, or are in process of being, adopted.

It is fitting here to acknowledge the assistance that is being rendered to horsehair manufacturers and to this Department by the County Council of Worcester through the work of their analyst, Mr. Cecil Duncan. In conjunction with Mr. A. Webb, of the firm of Messrs. E. Webb & Sons, hair and carpet manufacturers, Worcester, who are the possessors of a Washington Lyons steam disinfector, he has carried out a large number of

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experiments on the efficacy of this in sterilizing infected China mane hair. The first series of experiments were published by Mr. Webb as follows, and were decidedly hopeful:—

Experiments in Sterilization of China Manes by Steam.

1st—As to penetration of steam under pressure into original packed bales and cases.

In January of this year the result was announced of an experiment made under the authority of the Home Office in the disinfection of a hydraulic packed bale of China combings, weighing about 5 cwt., at the premises of Mr. H——, in London, where a high pressure steam disinfecting apparatus exists. The bale was put in the apparatus whole, not cut open. The highest temperature recorded on the dial of the apparatus was 240 deg. Fahr., and when this had been once attained, the steam was shut off and allowed to run down to zero, which would represent 212 deg. The bale remained in the apparatus for half an hour. Subsequent analysis showed that it had not been sterilized, as anthrax was present in large quantities in the middle.

Tests were made by the writer upon original packed cases of China manes in the usual bundles. The lid and two-thirds of the bottom of a case were removed, a hole bored in the end, and a small iron tube was driven in to the centre of the case. A registering thermometer was inserted and pushed in until the bulb end projected beyond the tube in the middle of the case, the tube being slightly withdrawn so as to bring the thermometer in contact with the hair. The outer end of the tube was securely closed and the case put in a Lyons steam disinfector, similar to that used in the Home Office experiment. After remaining under steam at 24 lbs. pressure, indicating 253 deg. F., for half an hour it was withdrawn, and it was found that the temperature in the middle of the case had only reached 177 deg. F. As the case was only 20 inches in depth, the thermometer must have been within 10 inches of the top and bottom, both of which were exposed entirely uncovered. It is evident that disinfection would not be accomplished, as the temperature recorded was at least 40 deg. F. below that at which there would be any certainty of anthrax spores being destroyed.

A second experiment gave a similar result, and the whole series is confirmed by the fact that dust collected from cases previously steamed under similar conditions was found to contain anthrax. It is probable that inefficient attempts at disinfection by heat are even more dangerous than doing nothing, as the germ would be cultivated by a moderate application of moist heat.

The deduction from these experiments is that tightly packed hair cannot be efficiently disinfected by steam within reasonable time and without the use of such temperatures as would damage the outer layers of the material.

2nd—As to temperature at which disinfection has proved effectual.

During the latter part of 1899, samples of dust collected from various qualities of hair were submitted to Cecil Duncan, Esq., Public Analyst for the county of Worcester, and among them two were found to contain anthrax. These were from China manes, inefficiently disinfected in cases as before mentioned, and from machines through which a large quantity of similar manes had been passed, mixed with South American hair. (A sample of dust from S. A. hair proved to be uninfected). Only a portion of the dust having been used for the experiments the remainder was returned to the writer, and subjected, part to 20 minutes' steaming at 25 lbs. pressure, and part to 10 minutes' at 26 lbs. pressure, which latter gave a record on a registering thermometer, put in at the same time, of 255 deg. Fahr. On subsequent trial of these by Mr. Duncan, including the inoculation of several guinea pigs, they were found to be completely sterilized in both cases. Later on, three other samples of dust known to contain anthrax were subjected to 13 minutes at 10 lbs. pressure, registering 227 deg. Fahr. by thermometer. This much-reduced temperature has also proved effective in destroying the spores of anthrax.

It may be deduced from these experiments that an actual temperature of 227 deg. Fahr. for, say, 15 minutes, is efficient, though there appears to be no disadvantage in using temperatures as high as 250 deg. for 20 minutes on hair for curling purposes. With hair tied up in bundles it probably requires a temperature approaching this to produce 227 deg. in their middle.

3rd—As to method to secure efficient disinfection.

The following particulars of various experiments will serve to show how efficient disinfection has been secured:—

I. Dust was shaken from bundles of hair forming part of two cases China manes. The cases were emptied into the cradle or basket of the disinfector and so spread out as not to crowd the bundles, which were not cut open with the exception of those from which the dust was shaken. This dust was marked C. The hair was steamed for 20 minutes at 24 lbs. pressure, equal to 253 deg. Fahr. Dust was subsequently taken from bundles which had not been opened and was marked D.

C was found to contain anthrax.

D was effectively disinfected.

Here the temperature used was high, as the hair was tightly bundled (about seven bunches in each bundle). If anthrax were found in the bundles taken at random which were first opened, it would be a reasonable deduction that it existed in those

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not opened, from which dust was taken after steaming. If so, it would show that disinfection in the bundle, so long as it was not tightly packed in a case or bale, could be secured. Further tests confirm this.

II. Dust shaken from bunches of China manes (not bundled) in a small bale, was marked L. The hair was then emptied into the cradle as before, and steamed for 20 minutes at 20 lbs. pressure, recording 247 deg. Fahr. Dust was then extracted from actual same bunches that had produced L, and was marked M.

L contained anthrax.

M was efficiently sterilized.

Here the temperature was rather lower, as the hair was in loose bunches of about 2½ inches diameter. The second quantity of dust was taken from the same bunches as the first.

III. Dust taken from small bale of China manes, same as the last-named. Marked N. The hair was put in the cradle as before and steamed at 12½ lbs. pressure for 20 minutes. Thermometer record, 235 deg. Fahr. Dust extracted from same bunches as produced N was marked O.

N contained anthrax.

O was efficiently sterilized.

It will be noted that the temperature was considerably lowered for this non-bundled class of hair, and proved effective.

IV. Dust was extracted from two cases China manes, and was marked P. The hair was put in the apparatus in the cases with lid and two-thirds of bottom removed, but they had been partially unpacked to the middle, and could not be again packed as tightly as originally. They were steamed for 20 minutes at 21 lbs. pressure, equal to 249 deg. F., and dust was then taken from same bundles as produced P, and was marked Q.

P contained anthrax.

Q was effectively sterilized.

This would show that such a packing as can be produced by mere hand pressure is not sufficient to keep out the steam heat, but no advantage is to be gained by the unpacking and repacking, and the same quantity cannot be put in the same cases.

All the experiments, numbering 23 up to the present, and still being continued in other directions, were conducted by the analyst without any intimation as to the source or condition of the samples—that is, whether crude or disinfected. In all cases they were proved by inoculation of guinea pigs, cultivation on gelatine, agar, and blood serum, by staining, and by the microscope. Each experiment was concluded before another was begun, and the utmost care used in purifying apparatus employed. Syringes used for injections were first washed in clean water, then in corrosive sublimate, and finally placed in a heater up to 260 deg. F., thus excluding all chance of error. As a result there has been no irregularity in the issues. In every case where anthrax has been detected it has been in the crude dust, and in no case has it been found in material which has been disinfected in an open condition.

Of eight cases China manes tested, four contained anthrax.

Of four bales of same, all were infected.

Of two samples taken from the dust from large bulk quantities both were infected.

The inference is that all China manes and combings are infected. Only a small portion of the whole case or bale is sampled, and it is probable that had the four cases found to be exempt been sampled throughout, they would have proved infected also. It may be mentioned, as a matter of interest, though apparently of no importance to horsehair manufacturers, that another microbe exists in hair which is far more rapidly fatal to guinea pigs, mice, &c., than anthrax, causing them to die in one-third of the time usually taken by this disease, but which appears to be harmless to man. This microbe interfered with the earlier experiments, but has been avoided by a different method of preparing the emulsion for inoculation.

Experiments on other classes of hair and other methods of disinfection will be reported later on.

The temperatures given in this report are those of a standard maximum registering thermometer, not those on the dial of the apparatus, from which they differ by 10 to 13 deg. The pressures given are those of the dial of the apparatus, and as there is no means of checking these on the machine, it is possible that they were not actually as high as shown by the dial, which may be set "fast."

Mr. Webb keeps China mane hair in the Lyons steam disinfector for 20 minutes at from 24 to 30 lbs. pressure, and believes from an experience of many tons so treated that it is not practically injured even at the temperature thus reached, provided it is ordinarily dry when put in the apparatus. If it is first soaked in water and then put in the apparatus the material is almost entirely destroyed, becoming shrivelled and jelly-like in nature. The latter experiment was tried because he found that although dust shaken from some

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bags of Chinese manes, when tested immediately afterwards for anthrax, appeared to be free, yet when the disinfected material from the same bags had been put through the carding machine the dust so collected contained anthrax spores. From this he was led to the conclusion that notwithstanding the high temperature used in disinfection, and the fact that the bundles of hair were laid in comparatively thin layers in the apparatus, either the tightness of the bundles or the resistance of the medium in which the spores were embedded on the hair in some cases prevented proper disinfection. In other words, so long as the actual steam was kept away from the spores, temperature alone did not appear to be effectual in killing them. Finding therefore, that first wetting the material and subsequent steam disinfection was impracticable, and that steam disinfection alone was not as effective as his numerous experiments had led him to assume, Mr. Webb has since boiled the Chinese hair after the process of steam disinfection, but he says that the hair so treated is very poor in quality, and the cost increased both by loss in weight and additional waste created in manufacturing. He expresses doubt as to whether the high pressures designedly obtained in the Lyons apparatus are as affective as those indicated in the report of Dr. Kubler, because the higher the temperature the drier must the quality of the steam necessarily be. Although in his opinion boiling hair may be the most certain method of destroying, or at any rate modifying the character of the anthrax spores, he puts the drawbacks to its use in the case of long hair, succintly as follows :—(1) the ends of the hairs are "tendered" more than by steam, (2) the natural grease of the hair is removed and it feels dry, which affects its spinning, (3) the colour is considerably damaged, (4) it loses more in weight, and (5) the drying of large quanties of hair is a difficult matter.

I append the account of the most important of Mr. Webb's later experiments, from which it will be seen that he is compelled to accept with reservation the results of the earlier trials.

> I have now arrived at some very valuable results, so far as proving that the hair must be in an absolutely loose condition, for steam disinfection at high temperatures to be successful. My previous experiments have shown, as I stated in my letter of November 21st, that the spores adhered so closely to the hair that ordinary shaking would not remove them, consequently the deductions originally made which were based upon dust shaken from disinfected hair are not reliable. Dust from such hair when it had been broken apart by the carding and combing machines contained anthrax. A recent experiment has been made as follows :—
>
> I selected some small locks of hair which were matted together and which I thought would be likely to be infected, and our county analyst cut off a small portion from the ends and eventually found anthrax present, though it took in one case seven and in the other eight days to produce fatal result, a very unusual state of things. He then returned me the remainder of the small locks which I bound round with some coloured tape in order to make them easily distinguishable, and embedded this little bunch (which was about as thick as one's little finger) in the middle of a bundle of Chinese hair which was about three inches diameter, and tied this up in the same way as it arrives in this country. I then surrounded this bundle with six or seven other bundles and tied them up also in the same manner as the hair arrives. This quantity, along with about 2½ cwt. more of the same class, was then put in the disinfector, but it was not crowded and the steam could easily penetrate all *round* the bundles. The pressure was slowly raised from zero up to 24 lbs. pressure, which occupied about 25 minutes. Having once attained this pressure it was left in for the usual 20 minutes to which we subject all the hair, consequently the hair was in the apparatus for quite three quarters of an hour altogether. On opening the bundle the steam appeared to have penetrated (so far as the *feel* of the hair was concerned) that is, it was very hot and slightly moist, but on subjecting the small lock again to analysis anthrax was discovered in a much shorter time, but the analyst says that this may be due to the fact that in the first case he may have had very few spores in his solution, and in the latter case a greater number, as he used rather more hair. The fact remains that, notwithstanding the high pressure eventually used and that it had been subject to a lower temperature for 25 minutes previously, disinfection had not been secured though the steam cannot have had to penetrate more than 4½ to 5 inches to reach the infected lock in the middle of the bundle.
>
> As the ends of the infected hair were exposed at the end of the bundle, the steam would have had a less distance to travel to reach the greater part of the lock, and I am therefore unable to believe that it did not penetrate this short distance. I incline to the idea that the bacillus, as we have to deal with it in practice, is more hardy than the laboratory specimen which is generally more or less artificially produced, whilst the conditions of the destructive process are less favourable to efficient results in our case.
>
> I must admit that at the present I can hardly urge upon my friends in the hair trade to go to the expense of steam disinfectors; whilst they undoubtedly minimise the risks, my own experience leads to the belief that they are not completely efficient.
>
> I have not yet detected anthrax in the dust from hair which has been boiled. The quantity we have treated in this way has not been large, but it is too destructive of the quality of the

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hair to enable us to continue it. It is not of much consequence after the hair has once been manufactured as the stiffness produced by it is sometimes an advantage, but when done prior to other processes it destroys the elasticity and "nature" of the hair and leads to bad spinning and great waste.

Mr. Duncan* thus briefly describes the result of his experiments :—

The examination of material for anthrax has occupied much of my time, no less than 85 samples have been examined for anthrax, against 17 in 1899.

The examination of hair and hair-dust from anthrax has been continued and a large number of experiments have been made. The experiments were made with a view to prevent outbreaks of anthrax in a hair factory. At first sight the problem appeared to be very simple, but, although many experiments have been made, the anthrax spore has been found still to exist in hair which has been treated with high pressure steam, and is therefore still capable of producing the disease in the workers. The hair of animals which die of anthrax frequently contain the spores of the bacillus producing that disease. The anthrax spore is very minute; when freshly developed it may be killed in ten minutes by boiling water, but if the spores become dry and surrounded with dirt and grease—as they frequently do in hair—they appear to become more resistant to boiling water. For instance, some of the samples of hair I have examined contained living anthrax spores after treatment with boiling water for 30 minutes, while living spores have also been detected in hair which has been heated in steam at 20 lbs. pressure for 30 minutes. It has been observed that the spores in some of the samples of hair and hair-dust so treated were not very virulent. They however became very virulent after cultivation and treatment.

Boiling the hair in water for a long time is not practicable, the hair being destroyed by the treatment. The addition of volatile antiseptics, such as, for example, formalin, hydrogen peroxide and alcohol, to the steam under pressure has been suggested. I hope to be able to try these methods and to report on the results of my trials. The presence of formalin in the steam at 20 lbs. pressure may possibly have some effect on the spores, while its action on the hair itself at that temperature would probably be very slight. I intend to make a series of experiments in another direction, and I do not see any reason why they should not be successful. I feel certain that the success of the experiment depends upon the fact that the bacillus of anthrax is much more easily destroyed by steam than the spore, and I intend to try whether the spores in the infected hair can be developed into bacili by treating the material with moisture at a temperature of about blood heat (98° F. or 37° C.) for a short time. I expect it will be only a few hours before the development is completed. If high pressure steam is then brought to act upon the bacili in the hair for a short time, I believe their destruction will be certain. It will be seen that some useful experiments are being undertaken in the laboratory, which I hope will be attended with success; but great care has to be taken when these experiments are being made to protect myself and the assistant from infection. The experiments are not hurried and cannot be safely made if any abrasions of the skin are present on the hands or arms.

In view of the extreme importance of the subject I insert here a translation of the essential parts of the report by Dr. Kubler,† of the German Health Office, which led up to the special rules now governing horsehair and brush factories throughout the Empire, the essential points of which are, as was pointed out in the last Annual Report, namely, disinfection, either

(1.) By the action, for at least one half-hour, of current steam under a pressure of 2¼ lbs. (equivalent to a temperature of 218 degrees Fahrenheit).

(2.) By boiling, for at least one quarter of an hour, in a 2 per cent. solution of potassium permanganate, and subsequent bleaching in a 3-4 per cent. solution of sulphurous acid.

(3.) By boiling in water for at least two hours.

The conclusion arrived at by Dr. Kubler differs from that of Mr. Duncan and Mr. Webb in that he believes sterilisation is complete after 30 minutes exposure to steam. It must be pointed out that the bales with which Dr. Kubler experimented differ from those used by Mr. Webb, and what is of still greater importance and goes far to make one place greater reliance on Mr. Webb's results than on Dr. Kubler's, is the condition of the spores of anthrax with which the experiments were made. In Mr. Webb's experiments they were in their natural environment on the hair, dry and surrounded with dirt and grease, whereas in the German experiments they were laboratory specimens introduced mechanically into the bales, and thus steam would probably penetrate more readily to them.

* Second Annual report of the County Analyst to the Worcestershire County Council.

† Arbeiten aus dem Kaiserlichen Gesundheitsamte, vol. xv., heft 1.

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The danger of Anthrax in Manipulation of Animal Hairs and Bristles and the measures necessary to obviate them.—By Doctor Kubler.

In December, 1894, the question of the prevention of industrial anthrax was re-opened by the Bavarian Government in consequence of numerous cases of the disease which had occurred in the preceding year among the workers in the brush factories at Nuremberg, and the horsehair spinning factories at Kitzingen. A circular letter was addressed to all the States, asking for information as to the frequency of anthrax, and as to the preventive measures hitherto adopted in most industries in which the possibility of disinfection of the raw material was not absolutely desirable, after the answers had been received, to enquire personally into certain points, a excluded, *e.g.*, in horsehair spinning factories and brush and broom factories. As it seemed number of factories in Prussia, Bavaria, Saxony, and Baden were visited by a Government Commission, of which the author was a member. Further, the effectiveness or not, of disinfection, as a preventive measure, and its effect on the hair and bristles, was made the subject of fresh experiment by the Imperial Health Office. Finally, on the 14th and 15th of June, 1897, a conference was held between scientific experts, and employers and employed in the industries named, as to the measures to be adopted for the prevention of anthrax.

The answers to the circular letter of the year 1895 showed that in the five years, 1890–1894, there had been 82 cases of anthrax, with twenty-five deaths, among the persons employed in the Empire in horsehair and bristle factories; further, that nine cases with four deaths occurred in 1895 and 1896, and further, that there were more than 50 cases with fifteen deaths in the ten or fifteen years prior to 1890. The number of anthrax cases must be higher than that given, as, in some of the States, there is no obligatory notification of the disease, and there is failure on the part of some of the physicions to diagnose the disease correctly.

The number of persons employed in the Empire, in the manipulation of horsehair and bristles, is not accurately known. So far as information is given, in answer to the circular letter, the number is about 12,000 in horsehair, broom, and brush factories. In some places the disease has appeared almost in the nature of a scourge. In Eschwege, where thirty workers were employed at three horsehair factories, there occurred in the five years 1884–1888, 16 cases with six deaths. Among 150 workers in three horsehair factories at Kitzingen in the five years ending 1890–1894, there were 19 cases with six deaths. In 1896, in the same place, with an increased number of workers there occurred seven cases; and up to the middle of 1897, 3 with one death. Among the 1,700 workers in the brush factories in Nuremberg, anthrax caused 19 cases with three deaths between 1890 and 1894; and in the years 1895 and 1896, 10 cases with several deaths.

The raw materials which are manipulated in horsehair, brush and broom factories, consist of the hair of different animals, especially horses and cattle, and, further, pig's bristles and vegetable fibres; only a small proportion is native material, most of the valuable hair and bristle coming from abroad.

The horsehair factories receive now a large proportion of horse and ox hair from the La Plata district of South America; ox hair comes, too, in large quantity from the slaughter houses of the Liebig Company in Uruguay, especially the cow-tail hair. Further, in the factories, pig's wool—that is, a soft hair from the stomach and sides and rump of the pigs from Chicago is manipulated. In addition to the American material, Russian and Siberian mane and tail horsehair especially, because of its cheap price, are readily used. Lastly, some factories receive also Hungarian, Japanese, and Australian hair, and hair from Morocco.

The factories in some cases receive the raw material direct from abroad; generally they buy from middlemen. Leipzig is the principal market, but the material is often dealt in by dealers in the port cities, principally Hamburg. After their arrival in the factory the bales are either stored in warehouses or opened at once and manipulated.

In brush and broom factories the raw material also frequently consists of the hair and fibres which have been sorted in the horsehair factories, but here the more valuable long-tail hair is not much used.

Usually, the hairs for brushes and bristles are cut in lengths and frequently the hair is obtained already cleansed and heckled. For finer brushes, the hair of the bear, squirrel, badger, marten, ermine, pole cat and other animals are used. Pigs' bristles are, however, the main material used for brushes and brooms. As the bristles of pigs reared in Germany are much inferior in length and strength to those of foreign pigs, the principal part of the required material comes from France, Austria-Hungary, Roumania, Russia, Siberia, India, China and Japan.

Part of the Russian bristles are already prepared, that is, washed and combed; most, however, are only more or less well-sorted and tied up. Chinese bristles are often dirty, but some of them come in a prepared condition. Japanese and French bristles, which are packed in small bundles, wrapped up in paper, are, as a rule, sent ready prepared and well cleansed.

. . . . . .

The danger of infection from anthrax in the manipulation of animal hair and bristles depends on, first, the origin and kind of the materials; second, on their cleanliness and the processes they have to undergo.

Only such hairs and bristles can convey anthrax which come from animals that have died of anthrax or have been contaminated with blood or discharges from such animals. Both dangers are practically negligible as regards native material, because the veterinary regulations

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prevailing in the German Empire as to the treatment of the carcase of an animal dying of anthrax, require that it shall be destroyed, so that neither hair, bristles nor any part of the raw material can be used. On the other hand, such an assurance of harmlessness as regards foreign hair and bristles cannot be secured, for in those countries, whence this material especially comes, similar veterinary regulations either are not in force, or, if they are in force in certain districts, there is no sufficient staff of inspectors to carry the measures out as stringently as is done by us. The danger must always be reckoned with that the rest of the contents of the bales may be infected from the hair or bristles coming from infected animals which are consigned from abroad.

The kind of raw material is of importance, as not all animals are equally susceptible to anthrax. Of 3,897 animals dying of anthrax in the German Empire in 1895, 3,183 were cattle, 551 sheep, 169 horses, 43 pigs and three goats. When it is considered that the weight of horsehair and bristles coming from abroad is reckoned in tens of thousands of zentners, it is hardly to be wondered at if infected material is sometimes introduced.

Experience shows that no single case is known in which anthrax infection has been carried to a worker manipulating exclusively native hair or bristles. As regards foreign hair the occupiers of certain wholesale horsehair factories, maintain that the disease has only arisen when Russian material has been worked; and they regard American material as free from danger. This view cannot, however, be maintained. In some horsehair factories, within the last few years, cases of anthrax have undoubtedly occurred where Russian material, in relatively small quantity, was worked, and had partially undergone disinfection; further, the repeated occurrence of anthrax in workers manipulating American raw hides show that the veterinary police in America is not sufficiently strict to prevent the exportation of infected raw material. A short time ago cases of anthrax were reported among workers in Hamburg who had been engaged in discharging a cargo of hides from Argentina and Brazil.

Experience again does not support the contention urged in the broom and brush industry that anthrax only occurs in the manipulation of horsehair and not in that of bristles. The cases which have occurred of recent years in Nuremberg, cannot have arisen except by infection from bristles, as since 1894 all horsehair, ox-hair, cow and calf hair, and all mixtures of hair and bristles from abroad have been effectually disinfected by current steam. The possibility of infection by anthrax spores must therefore be accepted for all untreated hair and bristles coming from abroad.

The danger is lessened if the hair and bristles have already been partially prepared and freed from dirt, especially from the dried animal discharges. French and Japanese bristles, therefore, are less suspicious than untreated Russian material. Those workers who first handle the raw materials are more exposed to the danger than those engaged in subsequent processes.

Liability to the disease is favoured if the nature of the work, as, for example, hand-heckling predisposes to slight abrasions on the hands, and so facilitates the entrance of anthrax spores clinging to the raw material. The danger is also lessened if, in the method of treatment, cleanliness of the hands is observed; for instance, in some large brush factories the girls engaged in washing the raw bristles have remained free from anthrax although the uncleansed material passes through their hands.

In general, all the work with foreign raw materials must be regarded as attended with danger, and the dirt and dust from these materials has even carried infection to persons having nothing to do with the raw material. In Eschwege two women died between 1884 and 1888 who had mended the clothes of their husbands engaged in horsehair factories. Further, the mother of a work-woman died of malignant pustule on the neck from having worn the scarf of her daughter who had worn it round her neck at work; a man engaged in using, as manure, dust from a horsehair factory developed a pustule on the arm. In the year 1897 a man died in Nuremberg of internal anthrax who had associated much with brushworkers and taken his meals with them; but had never been engaged with hair or bristles. Cases of anthrax have occurred in the neighbourhood of Eschwege and Kitzingen among the cattle in the neighbourhood of horsehair factories, and on such farms as use hair refuse as manure.

No cases of anthrax can be referred to the finished products of horsehair spinning, or to finished brooms or brushes. And it is true that anthrax is not at all, or very little, known in some of the principal seats of the broom industry in Germany. In one large factory at Munich no case has occurred for many years. In the extensive broom factories in Baden, employing more than 1,000 persons, no case has ever been known. In Saxony, where 960 persons are employed in factories and 1,200 in their homes, in the preparation of brooms and brushes, only one single case is known to have occurred. This is the more remarkable, as not only brooms but also brushes are made. This immunity cannot be attributed to failure on the part of the physicians to diagnose the disease. It must therefore be accepted that anthrax is far less common among the brushworkers in Saxony and Baden than in Nuremberg. Nor can the kind of material used explain the difference. The cause must be sought in differences in manipulation. Perhaps the explanation is that in Saxony and Baden all unprepared bristles are at once either boiled for a long time or bleached; whilst in Nuremberg, on the other hand, certain kinds of bristles are treated without any such preparation.

For the prevention of anthrax in hair and bristles, disinfection of the raw material coming from abroad is the best and surest measure, yet its success and practicability depends on the choice of the means of disinfection.

From Koch's published work on disinfection in 1881, it is known that the number of means for disinfecting anthrax germs is small. He says:—"In practice, for disinfection, only

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such means are worthy of notice which can destroy all germs of organic life within 24 hours. There are only a few substances which fulfil these conditions. Besides chlorine, bromine, and iodine, only corrosive sublimate, osmic acid and permanganate of potash have been able to destroy anthrax spores within 24 hours. Permanganate of potash only effected this when in a 5 per cent. solution; in a strength of 1 per cent. the spores were unaffected after two days." Chlorine, iodine, and bromine cannot be used for the disinfection of bristles and hair because the material is injured thereby, nor can a strong poison like sublimate be used, which after it has effected disinfection must itself be got rid of from the bristles; further, it is doubtful whether sublimate would successfully penetrate the dried animal discharges enclosing the anthrax spores, as the albuminous bodies in them would coagulate and not allow the sublimate to enter. Further, according to recent experiments, the effect of sublimate on anthrax spores is unreliable. On the other hand, Koch and Löffler have proved that 10 minutes' continuous exposure to hot steam at a temperature of 95° C. would suffice to kill anthrax spores. As it was desirable to try a large number of means for the disinfection of hair and bristles, experiments in this direction were undertaken by the Imperial Health Office, and those means were especially considered which recently have come into prominence as agents for disinfection. Formalin has been much spoken of and recommended for the destruction of anthrax spores in hairs and bristles. In the Imperial Health Office it has, however, proved uncertain. The formaldehyde vapour developed by Rosenberg's apparatus out of holzin, as well as that from Trillat's apparatus out of formochloral, sufficed to destroy very resistant anthrax spores, but to do this they required 20 hours, and the result failed if the spore holding samples were covered only by a thin layer of loose bristles or hair, or were tested in the coverings of the original packages. Turpentine oil was also tested by the Imperial Health Office, but this failed to satisfy the requirements. Anthrax spores were not certainly killed after three hours' exposure to a 4 per cent. solution of soap or a 1 per cent. solution of creosote soap at a temperature of 40° to 70° C.

In view of the immunity from anthrax of such factories where the whole of the raw material was thoroughly boiled before use, the effect of boiling water on anthrax spores was carefully investigated. It was known already that boiling water was not an absolutely reliable method for the destruction of the spores. This was the experience also in later experiments. Very resistant spores, which could be killed by current steam in 10¼ minutes, were used to impregnate numerous previously sterilised bristles with threads of silk. After they were dried some bristles were laid in a small sterilised linen bag; this was nicked, and in the nick two spore-holding silk threads were inserted. The linen bag was then loosely surrounded with fine thread, surrounded with a number of sterilised bristles, and made up into a packet with these by wrapping round several times with thread. In such packets the anthrax spores were killed after boiling for one quarter of an hour in one series of experiments; in some cases, however, anthrax germs developed after as long as one half hour's boiling. Of 49 experiments with thus infected bundles of bristles, 43 were freed from anthrax, of which 11 had only been boiled for one quarter of an hour; six on the other hand contained spores capable of developing, and in two cases they had resisted boiling for two hours. In no case were the spores found capable of development after three hours' boiling. Less resistant spores which were killed by steam in one minute twenty-five seconds lost their power of development after five minutes' boiling. The fact that boiling in the majority of cases destroyed even highly resistant spores after a short time caused the experiment to be made to see whether the spores which survived, even if capable of development, were attenuated in character. This was found to be so. Mice, which are particularly susceptible to anthrax, did not succumb, as a rule, to inoculation with the cultures of the boiled spores until the fourth or fifth day, whilst such animals died in less than 24 hours when inoculated with cultures from unboiled spores. Two mice constituted an exception—they dying within 1¾ days after inoculation with cultures of spores which had been boiled for two hours.

Boiling, therefore, does not absolutely destroy all anthrax spores, but the vitality of those that survive is diminished. When it is considered that man is far less susceptible to anthrax than, for example, a mouse, the danger of infection to the human subject from spores which have been boiled for a long time is small.

Boiling has, in addition to its disinfecting effect, a further great advantage in that it is an admirable method of cleansing the raw material from dirt, especially of the dried animal discharges which are liable to contain the germs. In one factory, visited by the author, the boiling was so carried out that the bundles of bristles were first placed into water, and this raised to boiling point by means of steam. After a time the first water was let out and new water let in, this exchange being repeated several times.

From this it can be understood that anthrax does not occur, or only very seldom, in such factories as boil the raw material; but a few workers must handle the raw material, because this must be unpacked. So long as cases of anthrax are not proved more frequently after manipulation of boiled material, boiling can be regarded as a not absolute security, but at all events a sufficient method of disinfection for hair and bristles. Experiments made to see whether the addition of chemicals to the boiling water aided disinfection did not lead to satisfactory results. A boiling solution of 2 per cent. potassium permanganate behaved, after one half-hour's use, just like ordinary boiling water. On the other hand, anthrax spores were regularly killed if the bristles were boiled for one-quarter to one-half an hour long in 2 per cent. potassium permanganate solution and then washed, and finally bleached in a 3 to 4 per cent. solution of sulphurous acid; whereas, bleaching with sulphurous acid alone is not sufficient to destroy the spores. If hair or bristles have been bleached in this way, a further disinfection is unnecessary.

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Current steam has proved itself, in the fresh experiments made in the Imperial Health Office, as an altogether reliable means of disinfection. Its effect was tested both on small and large samples, taken out of the original case containing the bundles of bristles, and on horsehair bales up to a weight of 110 kilos. In one such bale, four bundles, containing resistant anthrax spores, were so distributed that one was in the centre, one half-way between the centre and the surface, one a hand's breadth below the surface, and one on the surface. After the bale was again closed and tied up, it was exposed for an hour to current steam at a pressure of 2¼ lbs. in a Rietschel and Henneberg's apparatus, and all the spores were killed. In another experiment, in which the hair was taken out of the bales and laid in layers in a disinfecting apparatus, by which means penetration was more easily effected, exposure lasted only one half hour. Here also all the spores were destroyed. Similar results were obtained with an old steam apparatus in a horsehair factory, where high pressure steam (1½ atm.) was used for 10 minutes.

Unfortunately, up to now there is not sufficient practical experience to show whether through steam disinfection of the raw material, anthrax can be altogether excluded from such industries. In Cassel, and in a horsehair factory in Baden, where this measure had been prescribed, a few isolated cases occurred, but in both places the disinfection of only part of the raw material was carried out; in Cassel all unmixed mane and tail hair of whatever origin, and in the Baden factory Russian tail hair and all raw material not coming from Russia and the Balkan States, were not so treated. In Cassel, further, instead of steam a 15 minutes' boiling was allowed. A horsehair factory in Schleswig, which, in eight years, with an average number employed of 35, had had 25 cases and 11 deaths from anthrax, and, in consequence, on the advice of the Imperial Health Office, introduced steam disinfection in 1881, had two slight cases in both the following years; but it was proved that the disinfection had not been carried out long enough. Such cases occurring after the introduction of disinfection cannot be adduced as an argument against the use of steam. On the other hand, there is no doubt that in all three factories, since disinfection has been practised, anthrax has diminished in frequency, and that where, up till recently, disinfection has not been practised, every year numerous cases occur. If steam disinfection is carried out properly in the case of all raw materials, anthrax infection will not occur in subsequent manipulations.

Representatives of the industries have feared that the raw material would suffer serious damage, and in part be destroyed by the process of steam disinfection. As a fact, it has been noticed that the ends of the hair curled up and became brittle, that the elasticity diminished, and that white hair became yellow. After manipulation, the loss in weight showed that, through the steaming, a part of the material, namely, the ends of the hair that had become brittle, were lost in the "willey." In drawing, the hair could not be maintained in the previous length, because the ends broke off in hand-heckling.

As a result of earlier experiments, it could be accepted that most of these drawbacks could be referred to erroneous methods in the practice, and especially to the use of excessive pressure. Experiments showed that a pressure of 3¾ lbs. had no apparent effect on the hair, that a pressure of 7½ lbs. resulted in many hairs, after 10 minutes, getting their ends curled, which was increased by higher pressures; so that, by a pressure of 30 lbs., the hairs were very much altered. As most of the steam apparatuses in horsehair factories work with a higher pressure than ½ atm., it was put to the test whether this damage was likely to occur in an apparatus with lower pressure.

The experiments which Dr. Lorenz, in Kitzingen, carried out, in conjunction with several horsehair representatives, showed that hair suffered only very slight damage, even in the worst cases, by steam under slight pressure. In one case the loss of weight in material was 3 per cent., as compared with 2 per cent. when no disinfection was done; but this was probably due to the further treatment of the hair, as the steaming to which the material was subsequently submitted in the spinning process was done at a pressure of 18¾ lbs. Another horsehair factory, working with a pressure of 11¼ lbs., had not observed any special loss in material after disinfection.* The one unavoidable damage, even by low pressure, is the yellow colour given to white hair. It is to be hoped that technical experience will enable this yellow colour to be removed by perhaps bleaching the hair after disinfection, a thing which must be done before it is manipulated. At all events, care must be taken that the hair is first washed or taken to be bleached while still moist from the disinfecting chamber, because if it be allowed to dry the material which has become yellow from such impurities as blood, urine, &c., gets so intimately combined with them that they cannot be removed. If the white colour cannot be reproduced in a simple way white hair must be exempted from the necessity of steam disinfection, and, in its place, treatment with a boiling solution of potassium permanganate and sulphurous acid required. The experiments to determine this can be easily carried out, because such bleaching methods are already in use in horsehair factories.

More sensible damage has been observed in bristles after steam disinfection than in hair. They change colour and suffer loss in weight after combing, through brittleness at the ends. Grey bristles, further, lost their polish; most of the bristles got twisted and lost their elasticity, so that they were useless for brooms and brushes; the bundles got loose and fell apart. Such drawbacks occurred with steam at low pressure, yet it cannot be said that they might not be

* The later experiments, carried out in the Imperial Health Office, as to the injury resulting to hair after one half hour's steam disinfection (0·15 atm.) tend to destroy the doubts as to the value of the introduction of steam disinfection in the horsehair industry.

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avoided by suitable arrangements. Even in the treatment of most bristles by boiling they would get twisted if they were not in bundles and remained in bundles until the completion of the drying. If the bristles are exposed to steam disinfection in bundles they remain straight; the loss of colour and polish are due mainly to the drying of the impurities dissolved by the steam, and might be avoided therefore if the bristles were taken to the washing place while still moist from the disinfecting chamber.

In Nuremberg, lately, experiments have been begun to determine whether the bristles suffer less damage if they are manipulated further, immediately after steaming, and it has already been proved that such bundles of bristles, which hitherto were usually washed and bleached before bundling, could be disinfected in their original state, if, immediately after it, they were washed while moist; yet brushes made from these bristles were considerably darker in colour than if there had been no steaming. Those bristles which, hitherto, were treated without previous washing, bleaching, and boiling, bore the steaming process without material damage if disinfected in the original lots. It was necessary, however, to warm the apparatus beforehand, to allow the steam to enter slowly, and to allow the temperature not to exceed 102° C. After disinfection was done the bands of the original bundle had to be drawn tight. and to be followed by a complete drying of the material. In this way the stiff bristles suitable for the English brushes could be disinfected; only the white bristles could not stand the experiment as they change colour. Finally, in such cases a loss in material of from 9 to 15 per cent. occurred.

The results of these experiments, which are not yet finished, require further confirmation, and are not sufficient to prove the practicability of steam disinfection for all bristles, but they justify the hope that in time the whole of the raw material, for brooms and brushes, can be so treated. In the meantime, the other methods of disinfection recommended come into consideration, and would diminish, if not altogeter remove, the danger of anthrax in the manipulation of bristles; but of these it appears that potassium permanganate solution and sulphurous acid cannot be used for bristles, because the material so treated cannot be used for brushes and brooms, as proved in the Imperial Health Office and elsewhere. The ends of bristles are seriously damaged by it. This drawback, however, has only been observed if the potassium permanganate solution is allowed to act for a long time. For instance, bristles could be used if boiled only for one-quarter of an hour in the solution and then bleached with sulphurous acid. For a long time past, in many factories, bristles have been treated with a warm solution (not boiling) of potassium permanganate and sulphurous acid for the purpose of bleaching. On the other hand, all experience of the industry shows that almost all kinds of bristles can stand several hours simple boiling, and for most bristles this is an essential preliminary procedure. It is only as regards the stiff bristles for the English brushes that there is difference of opinion. Many assert that these bristles would lose their resisting power if they were boiled; on the other hand, such stiff bristles are now dealt with in this way.

Disinfection with current steam at a pressure of 0·15 atm. does not encounter any material industrial or technical difficulties in dealing with the great majority of the raw materials in horsehair factories, but at present, in broom and brush factories, would only be possible for hair and a part of the bristles. In place of the steam disinfection, bleaching by boiling permanganate solution and sulphurous acid can be used for a part of the material which cannot be so treated, and for almost all the rest boiling for several hours. In requiring disinfection it is necessary to bear in mind the possibility that other disinfecting means, which may come to light in future years, might be used, and that certain kinds of goods for which it can be proved that steam disinfection cannot be carried out without material damage should be exempted.

Further, care must be taken that anthrax infection does not result from the hair and bristles before disinfection is practised, and that similar infection in the manipulation of such wares as are exempted from disinfection shall be secured as far as practicable. For this purpose the following measures seem necessary:—

All raw material must be stored, before manipulation, in special store rooms kept under lock and key. To prevent the accumulation of dust such rooms must always be kept clean, and the material so removed is to be burnt or disinfected.

Usually the raw material has to be taken out of the original packages for disinfection, and, to some extent, as for instance in bundles of bristles, they must be made into special bundles. Such operations for the protection of the workers should, therefore, be carried out in special rooms separate from the other workrooms, and only adult persons should be so employed. They should wear overall suits, to be disinfected at least once a week; after the end of the day's work they should be removed and the unprotected parts of the body thoroughly washed; the workers in the factory should, twice weekly, have a warm bath. Persons with open cuts or sores should be excluded from such work until healing is complete. These regulations are suitable for all work with suspicious material, which is to be disinfected. Any dust arising from such work, and the refuse from the raw material, and the dust from workrooms, should either be disinfected or burnt. The wrappings in which the raw material comes to the factory, after removal of the contents, should be disinfected by steam or burnt. To keep a control, so that all raw materials for which no special exemption is allowed are disinfected, a book should be kept, giving the origin and kind of the material and the nature of the disinfection.

These rules appear to have excited opposition among the manufacturers, and in June, 1899, the Union of German Horsehair Spinners sought exemption from the requirement that all hair and bristles should be submitted to steam for one half hour, and suggested that steam disinfection for 15 minutes would suffice. The grounds on which they sought

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exemption were, that the damage resulting from exposure of the hair for one half hour to steam was so serious that the final product was considerably diminished in value. Further experiments, therefore, were carried out by Dr. Musehold,* of the German Health Office, to determine whether

(1) Curled horsehair treated to one half hour's steam disinfection, as well as the second steaming employed for "setting the curl" really showed the material damage alleged, and whether

(2) A shortening of the disinfection to 15 minutes could be allowed without endangering the object of the whole procedure, namely, to destroy effectually anthrax spores which might be present.

The result of the experiments led Dr. Musehold to maintain that no microscopical changes occurred after half an hour's steam disinfection, at a pressure of 2¼ lbs., and subsequent passage of the material through a willey, and spinning and steaming to set the curl, which could be referred to injurious action excited by the steam, and on account of which the material could be considered as diminished in value. No difference could be detected in two samples of curled Russian mane hair, both from the same bale, one disinfected the other not, when placed before an experienced manufacturer.

The following points were considered in answering the second question. As anthrax spores have been able to withstand exposure to current steam at 100° C. for 12 minutes, it was necessary to determine the time within which the centre of the raw material, as used in the trade, was penetrated by steam at a pressure of 2¼ lbs. After this the exposure would have to last 12 minutes. For the experiments an original bale of Russian mane hair was used, and half a bale for experiments with loosely shaken out horsehair. A Rietschel and Henneberg's apparatus was used. The average length of time for complete penetration, from the time in which the steam pressure in the interior of the apparatus reached 2¼ lbs., was roughly from 10 to 15 minutes. It apparently did not matter whether the hair was placed in the apparatus with the casing loosened or distributed loosely after removal from the casing, but if the hair was moist penetration took over 15 minutes. Since to this time must be added the 12 minutes necessary for killing the resistant anthrax spores, the duration of exposure cannot be lessened from one half hour to a quarter of an hour, reckoning the time from the moment when the pressure has reached the requisite 2¼ lbs.

DUST

From Ganister and Fire-Resisting Materials.—At the Congress of the Sanitary Institute in 1899, a paper was read by Dr. Birmingham, entitled "Ganister Disease," in which he called attention to the heavy incidence of respiratory disease upon the workers engaged in the ganister industry in the valley of the Don, between Penistone and Sheffield. He says: "I can find no record of a trade disease which furnishes such a high death rate as does ganister disease among those engaged in the industry," and he proceeds to give figures showing that the average annual death rate from ganister disease (silicosis of the lungs) was 22·29 per 1,000 workers†.

Enquiry by Commander Smith (Sheffield), showed that ganister miners were the class of men chiefly affected, although surface workers (with whom alone the Factory Department is concerned) had suffered. In his report he states that ganister is the name given to a close grained, hard, silicious stone, containing about 95 per cent. of silica, and used as the strongest fire resisting material known, for lining the bottom of Bessemer converters and the crucibles for moulding steel. The material is obtained by blasting with dynamite, and when brought to the surface it is first crushed in the jaws of a "cracker," then ground wet and finally moulded into bricks. At one time much of the ganister was ground dry, but now only a little is so dealt with to mix with or temper the material which is ground wet. The danger from dust is of course greatest to the miners. To the surface workers the danger is not so obvious. Dust, however, is given off at the cracker which can and is now usually controlled by steam jets, it lies thick on the floor of the brick-making sheds, and must be present in small quantity in the air. This dust has been used for sprinkling the surface of the brick so that the press may leave a clear

* *See* Arbeiten aus dem Kaiserlichem Gesundheitsamte, Vol. XV., Heft 1, for full account of alleged damage done to the hair, with photographs.

† Journal of the Sanitary Institute, Vol. XXI., Part I., page 66.

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imprint, but damp sawdust is now largely used for this with most beneficial results. Finally, in the setting of the bricks to dry in the kiln a little dust is disengaged every time a brick is thrown up.

Commander Smith believing that if ganister were so potent a source of lung disease, the same effects might be expected to be found on the workers engaged in the manufacture of other fire-resisting materials such as fireclay. Enquiry, therefore, was made by the Inspectors in districts where ganister, steel moulders' composition, or fireclay were used. The general result of this was to show that in the manufacture of ordinary fireclay bricks and pipes, although dust was generated to a considerable extent in the process, no specially injurious effects were attributed to its inhalation by the medical men practising in the districts.

Mr. Hilditch (North Wales), who has had practical experience in silica brick works, after stating that the number of persons employed in the manufacture of fire resisting materials is approximately 1,500, of whom 25·30 per cent. are young persons, gives the following account of the manufacture in Wales.

The Manufacture of Silica Goods, &c.—There are only six works where the grinding and manufacture of the above is carried on in this district, three of which are now under the Inspection of H.M. Inspector of Mines.

The silica rock as found in this locality consists of from 95 to 98 per cent. of silica, the remainder being alumina, lime, peroxide of iron, magnesia, soda, and water. For the lining of furnaces, the rock is crushed by an ordinary stone crusher and run into a pan, and ground under edge runners. A hydrated solution of lime is run into the pan together with the stone, in order to make the material adhesive.

The dust produced in this process is from the crushing of the stone only. Although this is carried on practically in the open air, much of the dust is blown into the manufacturing sheds, where the crushing is done in close proximity to the works. This might be avoided by having small jets of water running into the mouth of crusher during the breaking process. This can be done in all cases where the material is ground in a wet state.

It is in the grinding, screening, and packing of silica, used as a mortar for setting silica bricks, that the greatest evil exists in these works. The material for this must necessarily be in a very fine state, and for the purpose of passing through the fine screens easily it is passed through the machine in a very dry state. In some cases where the material is obtained in the form of sand, it is dried in a stove or kiln before grinding. The grinding is done under edge runners working in a perforated pan, or by some type of the numerous pulverizing machines in the market. Where the silica is obtainable in the form of sand, it is sometime simply run through a revolving screen shaped like the frustrum of a cone. The sand is thrown in at the smaller end, the finest passing through the meshes on to the floor underneath; the tailings passing out through the other end. The latter is afterwards ground up for brickmaking, &c. The machines are usually cased in, but considerable dust escapes through joints and outlets in the casing, and in the removal of dust from the mill. For export purposes the material is packed in canvas bags, each holding about 150 lbs., this work being largely done by females. Two women generally work together, one holding the mouth of the bag, the other filling it from the heap. In this work the women sometimes wear a handkerchief round the mouth and nostrils, but this is only done when the dust is so excessive that it actually clogs up the nostrils. This work as carried on at present is by far the most injurious in silica works; but, fortunately, it is of rather an intermittent character, the material only being put in bags as required. I have not seen fans in use in any part of these works. With the primitive plant in use at many of these works and the present method of working, they would be rather difficult of adoption, but the matter could be remedied without any great outlay or inconvenience.

In the manufacture of silica bricks the material is ground and mixed in the same way as that for lining, but it is reduced to a finer state of division. Afterwards it is tempered to a proper consistency by adding water—if necessary—and kneading with the feet, this work being done by females and male young persons. Cloggs are usually worn for this. The material is then pressed into iron or wooden moulds to the size and shape of the brick required, then taken off on iron plates and laid on the stove floor for drying, this work being again done by females and male young persons. These "bearers off" work under most trying conditions during the summer months, the temperature of the stoves ranging from 90° to 120° F., while the floors of the stoves are kept exceedingly hot by the heat from the furnaces passing through the flues underneath. Again, a considerable quantity of dust lies on the floors, caused by the breakage of unburnt bricks, and from rubbing the surface of the iron plates with a coarse piece of burnt brick. A thin coating of silicate of iron and lime forms on the surface of the plates, which has to be rubbed over in order to raise a little loose dust on the surface of the plate, otherwise the bricks would adhere to the surface during the drying process. The result of all this is that the floors have a thick layer of dust on, which is stirred up continually by the running to and fro of the "bearers off" and bearers to kiln. The working time averages about seven hours a day for moulders, temperers, and "bearers off." Considerable dust is also created by setting the bricks in kiln, this work being done by men.

The process may differ slightly in other localities, the foregoing being an account of the practice in South Wales. There are only two works making silica bricks in North Wales, the other four are simply engaged in grinding the material. No women are employed in the above North Wales works.

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The grinding of silica rock is an industry likely to develop in this district, as a new demand has been created by the Liverpool and Birmingham Corporations for a filtering material for their large waterworks. Silica by being crushed and ground to about a 64-mesh seems to suit the purpose admirably. As there are large deposits of the rock just around this district it is probable that new plant will be erected in several places as the demand increases. Fortunately for the workers the fine dust has to be drawn off as soon as generated, as no particles below a certain size are allowed in the filtering material. This will necessarily cause all the grinding and screening machinery to be enclosed, as the dust will have to be drawn off and blown into a closed chamber.

Ganister.—Ganister—as found in this locality—is a refractory siliceous rock, containing just sufficient argillaceous matter to hold together its siliceous particles without any other admixture of clay or binding material. It is composed of 75 to 80 per cent. of silica, the remainder being alumina, peroxide of iron, lime, magnesia, and soda.

No bricks are made from this material alone (in this district), but a few works grind it for furnace lining and brick setting. This operation is carried on by means of edge runners working in a perforated pan. The material is then elevated and passed through screens, the finer material running through a shoot to the shed, while the tailings run through another shoot back to the pan. Considerable dust is given off, chiefly from the elevators, screens, and shoots, all of which should be cased in. The Flintshire firebrick is made from a soft siliceous rock containing more argillaceous matter than ganister. The amount of silica in the rock varies from 55 to 60 per cent. A small proportion of ganister is mixed with this, and ground by passing through three pairs of rolls. The material is then elevated and run down to the tempering machines. There is practically no dust given off in this process, the material generally being in a wet state when brought from the quarry, water again being added as the stuff passes through the rolls. The ground material is taken from the tempering machines and moulded by hand in ordinary iron or wooden moulds. A little dust is given off in the sheds from the deposits on the floor being stirred up by the brick runners, sanding and dusting the moulds, &c. Other goods, such as drain pipes, ridge tiles, &c., are made from this clay. The ridges and tiles are usually dusted over with finely divided iron ore, which gives the articles a brighter colour after burning. On the whole this industry is carried on without much dust being generated in the process. No females are employed in any of the Flintshire works.

Manufacture of fireclay goods from clay obtained from the carboniferous measures.—This clay is chiefly used in this district for the manufacture of sanitary drain pipes and fittings, enamelled and glazed bricks and tiles, and plain buff bricks, &c.

The clay after being raised from the mine is tipped on the surface and formed into large banks, where, exposed to the influence of the weather, it decomposes and breaks up into small particles. It is afterwards ground together with a small proportion of burnt brick. The grinding is done under edge runners in perforated pans. The ground material is then elevated and passed through revolving screens, the finer particles passing through a shoot to the tempering machine, and the tailings through another shoot back to the pan. The clay is forced out of the tempering machine through a die, then cut by a wire cutting machine to the size required. The clods are then taken into the sheds to be pressed into bricks or made into pipes, &c.

Very little dust is given off in the actual grinding, as owing to the water chemically combined with it the clay is very plastic, and, further, a little water is run into the pan during the process of grinding. Dust, however, is given off from the elevators, screens, and shoots, which could be materially reduced by casing them in. There are only about 15 females employed in this trade, these being employed in the dipping sheds in glazed brick works. Firebricks are also made in some works in the district with a mixture of this clay and silica rock, the process of manufacture being similar to that detailed above. Very little dust is given off in this process, as water is added during the grinding.

I have failed to find that cases of death or serious illness have been traced as arising from employment in any of the ganister and fireclay works in the district. The three medical officers of health of Ruabon, of Hawarden, and of Buckley, in whose respective districts these fireclay works are situated, say that the health of the clay workers on the whole is very satisfactory, the mortality from phthisis being very low. Managers, foremen, and men also say that no serious cases of illness attributable to dust have been known in the district. There seems to me no doubt whatever as to the injurious effects of silica dust, and perhaps an investigation in some of the South Wales silica works, where the manufacture is carried on to a much greater extent than in the North Wales district, may shew that in many instances men have had to seek other employment on account of the dust generated in these works. During my experience in works of this kind in South Wales I have known of three deaths the causation of which, if followed carefully up at that time, would undoubtedly have been found traceable to dust inhaled in the course of their employment.

The ages and duration of employment, &c., derived from questioning the workmen and managers, seem to show that the manufacture of fireclay goods, as carried on in the Denbighshire and Flintshire districts, is not one that should be classed as specially injurious. Messrs. ———, Ruabon, who employ about 300 hands in the manufacture of fireclay goods, &c., say that quite a fifth of that number have been in their employ for at least 20 years. Other works in the district shew an average duration of employment of about 15 to 16 years. There are no females employed in any of the brick works in the district with the exception of those previously referred to.

I have never seen proper respirators used in any of the works.

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The adoption of the following suggestions may be of some use in preventing dust in silica works:—

(1) The stone should be crushed and run direct into the mill where possible, instead of being crushed into barrows or waggons, as is done in some places, and then conveyed to the pan and shovelled in.

(2) A water pipe should be fitted over the mouth of crusher, where water is used for grinding; this pipe should be perforated with small holes, which would throw a number of tiny jets of water into the crushing machine.

(3) In dry grinding and packing the machines and screens should be completely cased in, and a fan provided. In packing there would be some little difficulty, perhaps, in doing this in connection with a fan, but it is not insurmountable. It may be suggested that the present system of packing should be changed, and the bags filled straight from the machine through a hopper or some attachment to the machine. There would be an objection to this, as it is not expedient to keep up a large stock already bagged, as the material of the bag soon rots when the bags are kept filled and stowed one on the other. And when a large shipping order has to be executed quickly, time would not permit the grinding and running straight into bags. Therefore, a stock of 100 to 200 tons has to be kept under roof ready for packing.

(4) The stove floors should be swept up daily, and no unburnt broken bricks should be allowed to remain on the stoves, but should be taken away to the tempering rooms at once; or a wheelbarrow might be kept on the stove into which the pieces should be thrown directly a brick is broken. Much might be done to allay the dust in these places if a little more attention were given to these small details.

(5) Under present conditions proper respirators should be provided and worn by the packers. Suitable mess rooms should also be provided, built away from the mills and sheds.

Inquiry by Mr. Ashworth (Wolverhampton) in the extensive fireclay brick works around Stourbridge and Dudley, and of medical practitioners in the districts, did not show that apparent injury to health from inhalation of the dust resulted.

My own enquiries have been so far limited to places where steel moulder's composition is ground, to firebrick works, and to ganister works in the Sheffield district. I examined the chests of 121 men. Of these 25 were engaged in crushing steel moulder's composition, 75 in ganister works (including five miners), and 20 in firebrick works. In two of the 25 composition grinders who had worked 19 and 14 years respectively, in seven of the 75 ganister workers, and in two of the fireclay workers (aged 61 and 67 respectively, with correspondingly long duration of employment), definite physical signs of lung impairment were noted.

The physical development of nearly all of the men examined was surprisingly good, and even among the ganister workers conveyed no idea of the extent to which the lungs might become damaged by the dust. This was obtained by examination of five men, two ganister miners and three engaged in surface working, incapacitated from work, who I was able to see through the kindness of the medical practitioners. In all of these there was wasting; in two great dyspnœa; in all the vocal vibrations were increased; in one only was there history of hæmoptysis; all showed more or less the physical signs of tubercular phthisis on auscultation. The typical conditions noted in fibroid phthisis, no night sweats, no hæmoptysis, and no temperature distinguishing it from tubercular phthisis has, however, been frequently observed by the medical practitioners in the district. This was the case in the miner from whose lung the microscopical preparations of Dr. Andrewes (Figs. 1–8) were made.

The incidence of phthisis has been especially heavy upon the miners and surface workers at one ganister mine in the Stocksbridge district. The firm has furnished the following particulars of the number of persons employed at these works:—

—	Men.	Boys.
Ganister miners	177	6
Ganister grinders and breakers	23	—
Brickmakers	72	31
General labourers	18	—
Mechanics &c.	35	2
Total	325	39

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In other words, 177 men work underground and 148 on the surface. Of the surface workers I have not been able to ascertain how many may have worked for a time in the mine itself.

The following table gives the deaths, so far as is known, among the workers in this mine. The list is given at length, as the age at death, the occupation, and certified cause of death are of peculiar interest :—

Deaths largely due to Ganister Miner's Disease from 1891 to November, 1900.

Date.	Name.	Age.	Occupation.	Cause of Death.
1891.	R. W.	33	Miner	Phthisis.
	J. W.	38	Labourer.. ..	Heart disease.
	E. H.	39	Miner	Phthisis.
	J. W.	30	Labourer.. ..	Pneumonia.
	B. B.	36	Miner	Phthisis.
	J. L. H.	30	Miner	Phthisis.
	G. P.	32	Labourer.. ..	Enteric fever.
	W. D. A.	35	—	—
	T. W.	39	Miner	Phthisis.
1892.	J. E.	41	Miner	Phthisis.
	W. W.	25	Miner	Disease of brain.
	R. W.	47	Ganister grinder	Phthisis.
	G. M.	40	Miner	Inquest, "Natural causes."
	J. R.	32	Miner	Phthisis.
	G. W.	36	Miner	Phthisis.
	F. B.	35	Miner	Disease of lungs.
	A. T. C.	31	Miner	Phthisis.
	A. G.	35	Miner	Phthisis.
	J. E.	47	Miner	Phthisis.
	G. R.	38	Mason	Phthisis.
	T. H.	48	Miner	Bronchitis.
	E. D.	52	—	—
1893.	E. P. C.	35	Miner	Phthisis.
	J. E. W. (?)	25	Miner	Pneumonia.
	S. T.	42	Miner	Phthisis.
	D. H.	27	—	—
	E. W.	31	Miner	Phthisis.
1894.	C. W.	36	Miner	Phthisis.
	T. H.	44	Brick-maker ..	Pneumonia.
	A. F.	39	Miner	Fibroid phthisis.
	A. J.	33	Miner	Bronchitis? bronchiectasis.
	J. W.	34	Miner	Phthisis.
	J. D.	35	Miner	Phthisis.
	H. W.	33	Miner	Chronic phthisis.
	W. B.	28	Labourer.. ..	Phthisis.
	V. D.	30	Miner	Phthisis.
	G. C.	40	Miner	Phthisis.
	A. S.	39	Miner	Phthisis.
1895.	W. W.	38	Miner	Phthisis.
	A. H.	42	Miner	Phthisis.
	C. B.	28	Miner	Fibroid phthisis.
	J. J.	33	—	—
1895 —*cont.*	W. G.	38	Miner	Phthisis.
	W. B.	41	Miner	Fibroid phthisis.
	A. H.	27	Miner	Pneumonokoniosis.
	W. B.	62	Labourer.. ..	Phthisis.
	F. R.	41	—	—
	C. A.	38	Miner	Pneumonokoniosis.
	E. H.	40	—	Accidentally killed.
	J. B.	46	Ganister grinder	Bronchitis.
	W. H.	30	Miner	Phthisis.
1896.	G. E.	29	Miner	Phthisis.
	E. B.	28	Miner	Chronic bronch-pneumonia.
	A. H.	32	Miner	Pneumonokoniosis.
	S. S.	36	Brick-maker ..	Phthisis.
	J. S.	40	Ganister grinder	Phthisis.
	W. S.	40	Miner	Pneumonokoniosis.
1897.	D. R.	36	Miner	Phthisis.
	G. E.	44	Miner	Phthisis.
	J. W.	32	Miner	Phthisis.
	J. L.	33	Miner	Phthisis.
	H. S.	35	Miner	Pneumonokoniosis.
	H. M.	50	Miner	Pneumonokoniosis.
	E. J.	46	Miner	Pneumonokoniosis.
	T. W. B.	36	Miner	Phthisis.
	V. W.	39	Miner	Phthisis.
1898.	J. D.	34	Miner	Phthisis.
	L. F.	33	Miner	Phthisis.
	W. W.	39	Miner	Miner's phthisis.
	M. S.	40	Miner	Phthisis.
	J. B.	43	Deputy in mine	Phthisis.
	T. B.	43	Miner	Phthisis.
1899.	J. M.	44	Miner	Pneumonokoniosis.
	J. B.	48	Miner	Phthisis.
	D. M.	48	Miner	Ganister miner's disease.
1900.	J. C.	54	Miner	Ganister miner's disease.
	J. D.	34	Miner	Ganister miner's disease.
	G. R.	43	Miner	Phthisis.
	J. G.	38	Ganister breaker	Fibroid phthisis.
	A. F.	49	Miner	Phthisis.
	J. J	35	Ganister breaker	Pneumonokoniosis.

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Summarising the deaths from phthisis and respiratory diseases for the several years, and estimating them as a percentage on the numbers already given for surface and underground workers, the following comparison as to the relative danger in the two classes of workers is brought out :—

Year.	Surface Workers.	Per cent.	Miners.	Per cent.	—
1891 ...	1	0·67	5	2·8	Average death rate at the age period 35–45 of males in England and Wales from phthisis and respiratory diseases in quinquennial period 1891–95—per cent. 0·52*
1892 ...	2	1·35	9	5·0	
1893 ...	—	—	4	2·2	
1894 ...	2	1·35	9	5·0	
1895 ...	2	1·35	8	4·5	
1896 ...	2	1·35	4	2·2	
1897 ...	—	—	9	5·0	
1898 ...	—	—	6	3·5	
1899 ...	—	—	3	1·7	
1900 ...	2	1·35	4	2·2	
Total ...	11	—	61	—	

* See figures prepared by Dr. Tatham, Superintendent of Statistics. Minutes of evidence taken before the Royal Commission on Tuberculosis, 1898, pp. 359 and 361.

Among the surface workers, therefore, it is evident that there is an excessive mortality from phthisis, and that among the miners the incidence in 1892, 1894, and 1897 was ten times as great as in the general male population at corresponding ages. A glance at the age at death shows how short-lived these workers are, yet the majority of them had probably been employed for at least 10–15 years.

The same surname occurs in one instance four times, in two three times, and in twelve twice, thus showing infection of several members of the same family, a point which must not be lost sight of if, as seems probable, the tubercle bacillus is grafted on to the lung damaged by the ganister dust, thereby accelerating a fatal issue. Indeed, in the small cottages of the workers of the village situated in the dip of a deep valley, the conditions for the spread of tuberculosis are most favourable, and amelioration of the conditions of work must be supplemented by improved sanitary conditions of living.

As means towards this the notification of phthsis, distribution of information as to the infectivity of phthisical sputum, and disinfection by the sanitary authority of the rooms occupied by the affected person after death, suggest themselves.

It seemed to me useless to pursue inquiry in connection with this particular work further unless accurate information could be obtained as to the relative effect in producing the disease of the lungs of the ganister dust on the one hand, and of the tubercle bacillus on the other. Much of the pathological work on which current views on dust inhalation are based was done prior to the discovery of the tubercle bacillus. Dr. Greenhow's* classical descriptions with illustrated plates of the lung lesions in colliers, potters, flax dressers, and grinders date back more than 30 years, and in some of the specimens prepared by him tubercular cavities are obvious.

Through the kindness of Dr. Robertshaw, Medical Officer of Health of the Stocksbridge Union, whose attention has long been directed to the condition of the ganister industry, and of Dr. J. Maclaren, Certifying Factory Surgeon of the Oughtibridge district, material was obtained from two ganister miners, and minutely examined by Dr. F. W. Andrewes, Pathologist of St. Bartholomew's Hospital, which proved beyond doubt the correctness of

* Transactions of the Pathological Society, Vol. XVI., pp. 59–60; Vol. XVII., pp 34–38, and Vol. XX., pp. 41–59.

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Dr. Greenhow's conclusions that the inhalation of heavy angular particles of grit produce in the lungs (1) iron grey nodules scattered through consolidated portions of lung; (2) deposition of black mineral matter around the bronchial tubes, arteries, and veins; and that (3) the development of tubercular phthisis is intimately associated with, although independent of, the lesions produced by the dust. The point which remains for inquiry is how far is a fatal issue ever brought about directly from the lesions due to dust apart from the added tubercular infection.

The following are Dr. Andrewes' reports on the samples of lung submitted to him :—

Report on Portions of Lung from a Ganister Miner.

The lung has been preserved for a considerable time in spirit. The larger and more characteristic portion is a section of an entire lung, from base to apex. The upper lobe is densely indurated black and fibrotic. The pleura is thickened, especially at the apex. The lower lobe shows less advanced changes: numerous blackish nodules, about the size of a hempseed, are scattered throughout its substance with tolerable uniformity. Under a lens many of these indurated patches are seen to contain a minute cavity, as if they had been formed around minute bronchi or blood vessels. The intervening lung tissue is greyish, scarcely at all pigmented, and not indurated; it has the appearance of slight, uniform emphysema. The large and medium-sized bronchi stand out prominently, but are scarcely thickened or dilated. To the naked eye the lung nowhere shows any evidence of tubercle; there is no puckering or scarring, and no caseous or calcified area to be seen at the apex.

Microscopic Examination.—Seven different blocks of lung tissue were selected illustrating as far as possible the different degrees of fibrotic change present from an area almost normal up to the densest induration. These were imbedded in paraffin and cut with a rocking microtome. The method of staining found most suitable for the investigation was that known as Van Giesson's method—viz., staining in haem-alum, followed by a counterstain of acid fuchsin with picric acid. In this way the distribution of the fibrous tissue was demonstrated with great minuteness. Nuclear staining was not very well marked because the tissue had been lying so long in spirit.

All sections show an abundance of foreign mineral particles of a black or brownish colour. The majority of these are minute, irregular, sometimes angular in form. Seen singly they are semi-transparent and brownish, but they are commonly collected into blackish heaps, included in cells, and then appear opaque. Careful focussing, however, reveals the presence of the angular semi-transparent particles in these accumulations. The pigment masses have not the soft and rounded outline of the carbon masses seen in the lungs of town dwellers; nevertheless very finely divided jet black particles are present, which are probably carbon, but they are less abundant than the brownish semi-transparent masses. The pigment masses occur chiefly in connection with the fibrotic areas.

A few simple chemical tests were applied to microscopic sections, and their effect watched under the microscope. Caustic potash (10 per cent.) produced no change whatever in the pigment. Glacial acetic acid likewise caused no change. Fuming nitric acid caused liberation of gas bubbles under the coverglass, but the colour and amount of the pigment were in no way altered. From this it may be concluded that the colour does not depend upon altered blood or any organic product, but that the pigment is purely mineral in character—carbonaceous or siliceous. The liberation of gas by nitric acid indicates the presence of traces of carbonates.

The characters of the fibrotic change and its localization and development could be traced from its earliest commencement. Sections of the least affected portions of the lung present the following appearances :—The pleura is scarcely thickened over much of the lower lobe. There is a slight degree of diffuse emphysema; apart from the indurated patches there is a very slight increase in the amount of fibrous tissue present in the alveolar walls generally, but in some places this is barely perceptible. Careful search in the alveolar walls reveals the presence of scanty mineral particles scattered in the tissue. In places these form larger clumps. Some few detached epithelial cells laden with pigment are seen here and there in the alveoli, but on the whole, except around the fibroid nodules, the pulmonary epithelium shows no sign of proliferation or catarrh. There is no evidence of general bronchopneumonia and none of vascular congestion.

The development of the fibroid nodules appears to take place in the first instance around the small arteries, veins, and bronchi. The normal scanty fibrous investment of these shows irregular thickening with an accumulation of blackish pigment mostly enclosed in large cells lying amongst the newly formed fibrous tissue. Where a vessel chances to be cut longitudinally, the perivascular thickening is seen to be irregular and patchy, whence arises the appearance of discrete fibroid nodules. When cut transversely nearly all the blood vessels display some degree of perivascular fibrosis, but it is probably slight or marked according as the section happens to fall across a lesser or a greater degree of the irregular thickening. This is true also of the bronchi, but these have undergone so much loss of mucous membrane that it is not always easy to say which are bronchi and which blood vessels. It is not possible to be sure that all the young fibroid nodules have this perivascular or peribronchial origin. Some appear to be independent of vessels or bronchi, but it is possible that they are tangential sections of such thickenings. It seems clear, however, that most own such an origin. In any case the relation between the accumulation of mineral particles and the production of new fibrous tissue is obvious and beyond dispute.

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PLATE I.

FIGURE 1.

Vertical section through the left lung of Case II. It shows the dense fibrosis about the root of the organ and in the upper lobe, also the grey fibrous nodules disseminated throughout the lung. There are numerous small cavities at the apex and one large tubercular cavity towards the base of the upper lobe. A small cavity is also seen lying in a dense grey fibrous mass at the base of the lower lobe. The thickening of the pleura is also well seen.

[⅔ natural size.]

FIGURE 2.

(This and the following figures represent microscopic sections of the lung of Case I., except No. 9, which is a section of a bronchus from Case II. All are stained by Van Giesson's method, which stains the fully-formed fibrous tissue bright crimson and the red-blood corpuscles yellow. The rest of the tissue has a brownish tint: the pigment is unaltered by the stain. No. 8 alone is stained with hœmatoxylin and rosin.)

No. 2 is a section of the less affected part of the lower lobe of the lung, shewing the scattered distribution of the young fibrous nodules and the emphysematous condition of the intervening lung tissue. The deposit of pigment is limited to the nodules.

[× 8 diameters.]

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Plate I.

Fig. 1.

W. H. Lapidge
march 1901

½ Full size

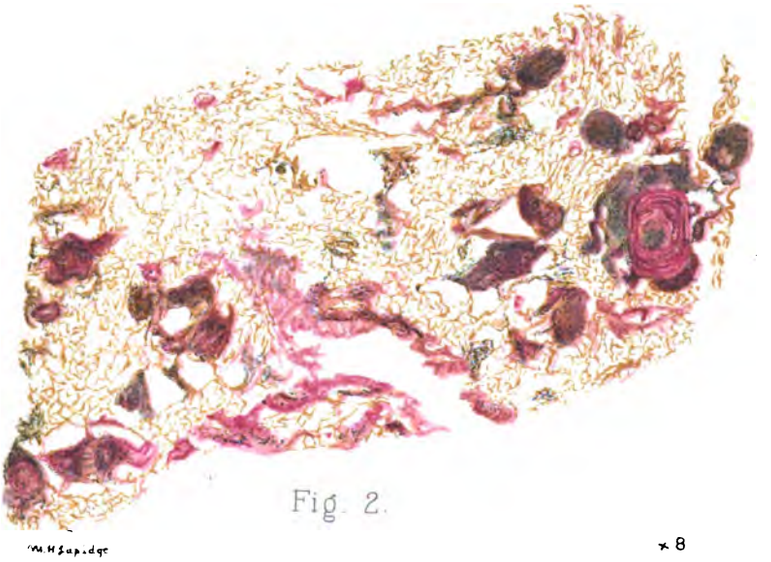

Fig. 2.

W. H. Lapidge

× 8

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Plate II.

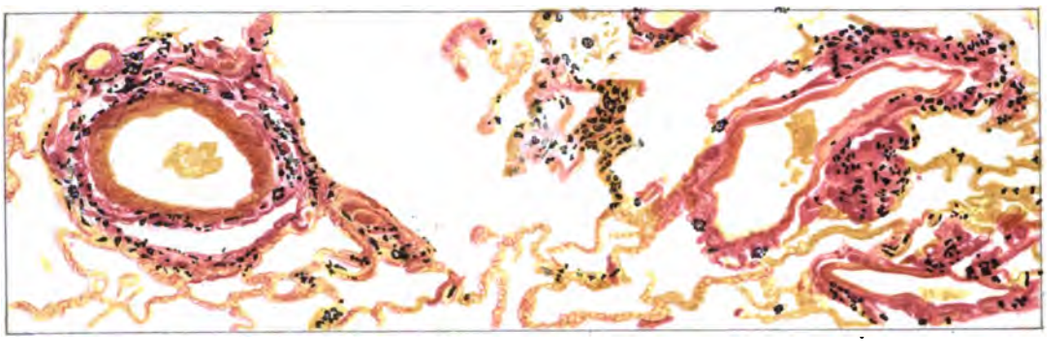

Fig. 3 ×90

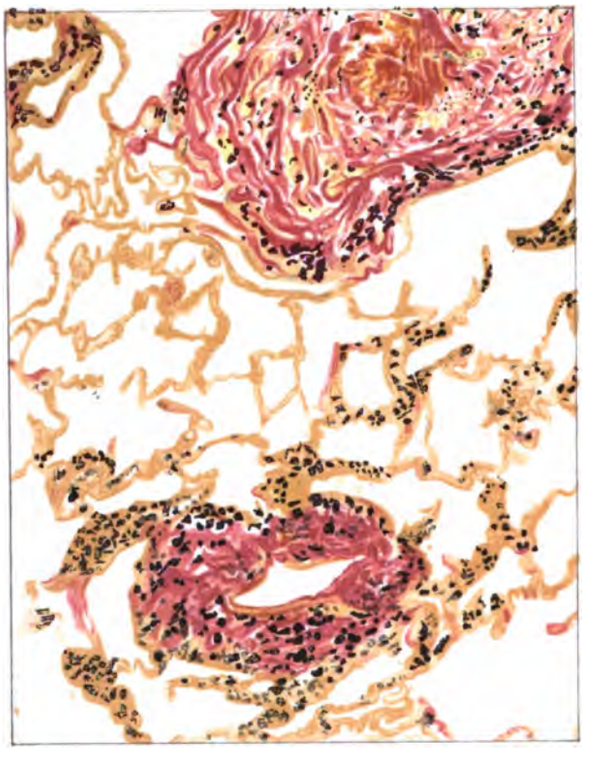

Fig. 4 ×50

E. Weller & Grahams, Ltd Lithc. London. W. Hauptfleisch, Munich 1901

Fig. 5 ×50

1924 5 190

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PLATE II.

FIGURE 3.

Section of a slightly affected portion of the lung, shewing the distribution of the newly-formed fibrous tissue around the blood-vessels and small bronchi. The pigment is in large clumps which correspond to cells.

[× 90 diameters.]

FIGURE 4.

Section through two more fully-formed nodules. The cavity of a blood-vessel is seen in the smaller of the two. The distribution of the pigment is well seen, it is chiefly in the nodules, but some is contained in thickenings of the alveolar walls.

[× 90 diameters.]

FIGURE 5.

Section through a large and fully-formed, but still discrete, nodule. Its central part is dense fibrous tissue with a roughly concentric arrangement. The pigment here is scattered in fine particles. The edge of the nodule is of younger fibrous tissue, and the pigment is included in cells. The mode of the increase of the nodule is shewn in the thickening of the adjacent alveolar walls.

[× 50 diameters.]

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PLATE III.

FIGURE 6.

Section through a similar nodule, more highly magnified. At the periphery the fibrous tissue is young and not fully formed; the pigment here is intracellular. In the central part there are bands of dense fibrous tissue cut across in various directions, and shewing finely granular pigment in their interstices.

[× 200 diameters.]

FIGURE 7.

Section through the completely fibrous upper lobe of the lung, shewing confluent nodules of similar structure to the central parts of the preceding.

[× 50 diameters.]

FIGURE 8.

Section through a young tubercle from the upper lobe. There is a reticulum of endothelial cells with a few leucocytes and two large multi-nucleate giant-cells.

[× 300 diameters.]

FIGURE 9.

Section through the wall of a large bronchus from Case II. to shew the changes in the mucous membrane. The epithelium has practically disappeared, though some still remains lining a small crypt. A little pus lies on the free surface. The blood-vessels are much dilated, and the mucous membrane is in a condition of chronic inflammation.

[× 50 diameters.

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Plate III.

Fig. 6 ×200

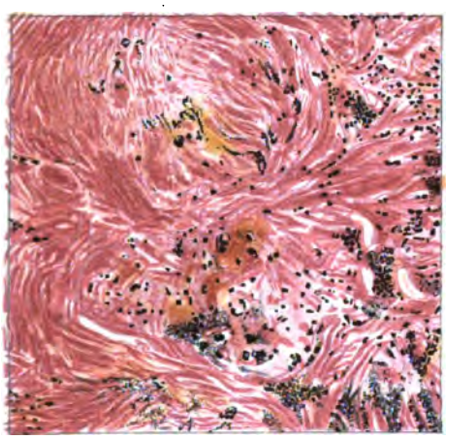


Fig. 7 ×50

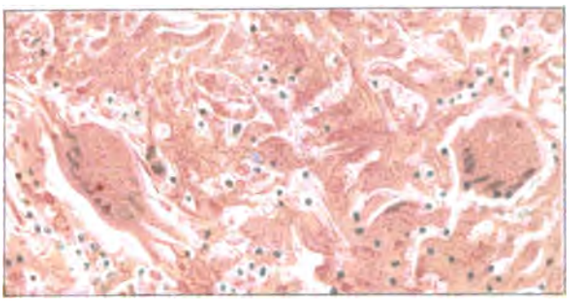
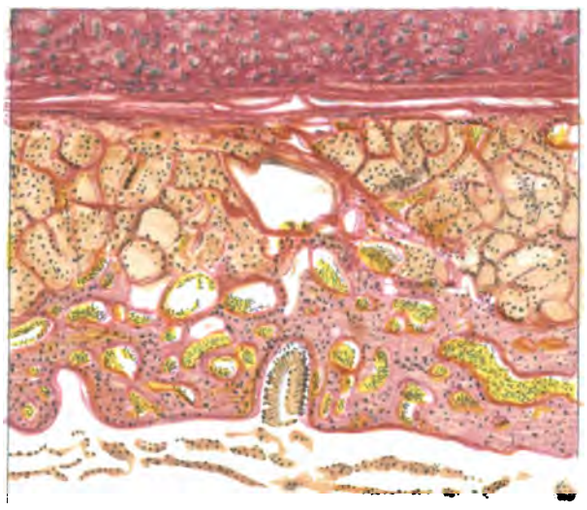


Fig. 8 ×300



M.H. Lapidge March 1901.

Fig. 9 ×50

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Older and denser nodules, such as are visible to the naked eye, as the hemp-seed structures above described, illustrate the further development of the process. In these the vessel or bronchus around which they have presumably arisen has usually disappeared, and they present concentric zones which represent different stages in their formation, and illustrate the manner in which they increase in size. The outermost zone shews the earliest stage; large black pigment-laden cells accumulate; they may be in part leucocytes, in part pulmonary epithelial cells or fixed connective-tissue corpuscles. The pulmonary epithelium is here often in a condition of catarrhal proliferation—a localised broncho-pneumonia—each cell full of mineral particles. The next zone consists of a loose connective tissue, the meshes of which contain the large pigment-laden cells previously mentioned. The mineral matter is almost entirely intracellular. The central mass is composed of a dense fibrous tissue in which the cells have almost entirely disappeared, the mineral particles now becoming free and less conspicuous because no longer aggregated into dense black clumps. It is easy to realise, from the structure of such nodules, how they increase in size at the expense of the lung tissue. Beneath the pleura a similar development of new pigmented fibrous tissue similarly occurs. It is to be observed that all this fibrotic change corresponds in its localisation with the distribution of the lymphatic system of the lungs. The lymphatics, originating by stomata between the pulmonary epithelium, fall into two sets: (1) the sub-pleural network, and (2) those which closely accompany the blood-vessels and bronchi, forming a perivascular and peribronchial network.

The final stages in the process are shown by sections taken from the upper lobe of the lung, in which the fibrosis is much more dense and complete. Here the individual nodules have so encroached upon the lung tissue that they have more or less completely coalesced. In the most advanced portions little or no normal lung tissue can be seen, although the focal character of the fibrosis is still perceptible, since islands of dense fibrous tissue are connected by areas in which the pigmental cells are enclosed in a loose connective tissue. The mineral particles are here even more abundant and conspicuous than in the lower lobe of the lung—free in the denser fibrotic areas, still intracellular in the less advanced portions. In one single nodule (in the lower lobe) calcification was seen, but this stage is absent elsewhere.

Although to the naked eye there is no evidence of tubercle in the lung, yet microscopically such evidence exists in at least one of the seven blocks. The process of fibrosis has been traced from its earliest stages, and is most positively non-tubercular in its origin. The evidence of tuberculosis is present, as a recent and accessory phenomenon, only in the most advanced stages of the fibrotic change. It consists in the presence of small miliary tubercles embedded in the fibrous tissue, and shewing the characteristic structure of tubercles, with typical giant cells. Even in these no tubercle bacilli can be demonstrated.

The conclusions to be drawn from the preceding observations are as follows:—

The inhaled mineral particles are in the first place deposited uniformly in the pulmonary parenchyma. They are at once taken up hence by the lymphatics and carried along by the lymph stream. The lymphatics have a perivascular, peribronchial, and subpleural distribution, and in these situations the mineral matter specially accumulates because the amount is greater than can be got rid of by the lymphatics. It is here chiefly found enclosed in cells (phagocytes) and exercises an irritant action leading to the production of new fibrous tissue in these situations. The fibroid areas increase at the expense of the adjacent lung, in part at least by the development of a localised broncho-pneumonia, and in part by thickening and induration of the alveolar walls. When the fibrous tissue is fully formed, the cells containing the mineral particles break up and degenerate, and the particles again lie free amongst the fibrous tissue. By the spread and coalescence of the fibroid areas the lung tissue, in the most advanced areas, completely disappears. A secondary tubercular infection has now taken place, and miliary tubercles appear in scanty numbers in the fibroid areas.

Chemical Analysis.—Portions of the lung were handed to Mr. H. A. Schölberg, M.B., who furnishes the following analyses.

The material supplied was dried at 100° C., on a water bath for three hours. The dry lung tissue thus obtained was used for analysis:—

(1.)	Grammes of dry lung taken	2·2675
	Loss of weight on combustion in muffle furnace ...	1·1900
	Residue of ash	1.0775
	Percentage of ash in dried lung	= 47·519
(2.)	Estimation of silica:—	
	Grammes of dried lung taken	·1505
	Silica in the same...	·0100 gms.
	Percentage of silica in dried lung	= 6·644

(Signed) F. W. ANDREWES, M.D, F.R.C.P., D.P.H.

Pathological Laboratory,
St. Bartholomew's Hospital, E.C.,
13th February, 1901.

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Report on the Thoracic Viscera of a Ganister Miner.—Case II.

This report must be taken in connection with my preceding report on a lung from a similar case of ganister disease, which will be referred to as case 1. In this instance, however, I was furnished with the entire thoracic viscera from a recent postmortem examination.

Death appeared to have occurred from acute pleurisy and pericarditis. The pleurisy was most marked at the base of the left lung, where the pleura was thickly covered with flaky yellow lymph. Both the visceral and parietal layers of the pericardium were coated with a thick layer of recent shaggy lymph. Some of this lymph stained with methylene blue, showed large numbers of diplococci resembling the diplococcus pneumoniæ. I consider it probable that death resulted from an acute intercurrent infection with this organism.

The heart showed some hypertrophy of the right ventricle; the valves were normal.

The lungs as a whole were voluminous and not shrunken or puckered. There was no visible ulceration of the trachea or large bronchi. The bronchial glands were not much enlarged, but some were caseating as if from the presence of chronic tubercular infiltration.

In addition to the recent pleurisy the pleuræ showed evidence of chronic thickening, which was specially marked over the left upper lobe. There had been numerous pleural adhesions. On the right side there was little general thickening, except over the lower part of the upper lobe. Both pleuræ showed numerous discrete whitish nodules, about as large as hemp seeds, scattered all over them, but much masked on the left side by the general pleural thickening. These nodules were slightly raised above the surface and could be plainly felt on passing the hand over the pleura. They appeared to be small fibroid masses deposited in the pleura itself.

The pathological changes in the left lung were much more advanced than in the right. The whole of the left lung, except the extreme base, was dotted with very hard nodules of fibrous tissue, grey in colour, mottled with black, and averaging $\frac{1}{4}$ inch in diameter. These were sharply defined; in some parts closely set, in others scattered. Here and there were hard confluent masses of fibrous tissue of a blackish grey tint. The intervening lung tissue was evidently emphysematous, especially at the base. The lower part of the left lower lobe, particularly the part adjoining the pericardium, was in a state of pneumonic consolidation—in the stage of grey hepatization. The left upper lobe was more densely fibroid than the lower lobe and more uniformly so, though the discrete grey nodules, mentioned above, could be plainly distinguished. The apex was riddled with numerous small smooth walled cavities almost in contact with each other. Amongst these were some small caseous areas of tubercle. The precise nature of these cavities could not be determined; they suggested a bronchiectatic origin—it is probable that some were tubercular and some bronchiectases. Near the base of the left upper lobe was a single very large cavity, measuring $1\frac{3}{4}$ inch by 1 inch; this precisely resembled a chronic tubercular cavity; it had moderately smooth irregular walls, and was crossed by blood-vessels. Another cavity, smaller than this, was present near the base of the left lower lobe in the middle of a dense fibrous area.

The right lung was much less affected. The lower and middle lobes were somewhat emphysematous and showed numerous scattered black nodules like hemp seeds. The condition precisely resembled that described as seen in the lower lobe of the lung of case 1 in my previous report. Here and there larger grey nodules were present as in the left lung. The right upper lobe showed these larger grey nodules more numerously, particularly at its extreme base in front, where they had partially coalesced to form a dense, hard wedge-shaped mass. No cavities could be seen anywhere in the right lung, and there was only scanty evidence of tubercle to the naked eye; there were, however, one or two early caseous tubercles, quite small, close to the apex.

In both lungs there was dense fibrous change at the roots, around the main bronchi and blood-vessels, with deep black pigmentation. No vascular thrombosis was anywhere apparent.

Microscopic examination.—Seven different portions of the lungs and bronchi were embedded in paraffin, cut, and stained by Van Giesson's method (which had been found to give the best results in case 1).

The essential nature of the pathological process was found to be identical with that already fully described in my report on case 1. It is therefore unnecessary to repeat all the details; it will suffice to recapitulate the principal changes, and to state any differences which have been found between the two cases, with such amplifications as further study has revealed.

The *great bronchi* in this case could be examined. Their mucous membrane showed striking changes; it was somewhat thickened and in a state of chronic inflammation. The blood-vessels were considerably dilated and engorged; the epithelium had disappeared except in the crypts and recesses, and here and there on the surface. No ulceration was found beyond this denudation of surface epithelium.

In the less affected portions of the lungs a moderate degree of emphysema was present with a diffuse deposit of pigment in the alveolar walls. This pigment was quite similar in microscopical character to that found in case 1, but was more abundantly diffused in the lung generally, and, as a rule, less copiously concentrated in the fibrous areas. There was considerable proliferation of the pulmonary epithelium, amounting in places to a broncho-pneumonia, and the desquamated epithelial cells contained an abundance of pigment. As in case 1, the initial fibrosis occurred chiefly around the blood-vessels and small bronchi, and the same aggregation of pigment in the cells of the young fibrous tissue was present. The smaller bronchi shewed evidence of bronchitis, being sometimes almost plugged with desquamated epithelium. A

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section taken through the base of the lung, where the pleural changes were conspicuous, shewed, in addition to the recent pleural lymph, a chronic fibrous thickening of the pleura, with nodules of dense fibrous tissue, evidently corresponding to the whitish nodules seen by the naked eye.

The fully-formed fibrous nodules presented the same structure as in case 1, but they shewed a less conspicuous amount of black pigment, especially the larger grey nodules above-mentioned. In most sections a few young tubercles were found around the fibrous nodules, but the latter shewed no sign whatever of being tubercular in origin. Oedema of the lung was often obvious around the nodules.

The pneumonic part of the left lower lobe shewed the ordinary changes seen in grey hepatization. The alveoli were full of polynuclear leucocytes and the fibrin-network was inconspicuous and breaking down. No tubercle bacilli could be found here, nor, indeed, in other sections specially stained for the purpose. But the difficulty of demonstrating tubercle bacilli in young tubercles is so great that no surprise need be felt at the fact. Little pigmentation or fibrosis was found in this pneumonic portion of the left lung.

The apex of the left lung shewed dense fibrosis and many scattered young tubercles. The cavities had no definite lining membrane, but appeared as mere excavations in the fibrous tissue; their actual origin could not be determined. The smaller blood vessels were often dilated. In this part of the lung there was little pigmentation.

I conclude, from the examination of these lungs, that the primary changes are dependent upon the chronic irritation of an inhaled mineral dust, which, being absorbed by the lymphatics, gave rise to a fibrosis which is lymphatic in its distribution in its earlier stages, though it subsequently extends to large areas of lung tissue. Upon this fibrosis, a secondary tuberculosis has later been grafted; the tubercular changes are more widespread and obvious in this case than in case 1, but there is no evidence that the tubercular disease is primary. The patient appears to have ultimately succumbed to an intercurrent pleurisy and pericarditis due to infection by the Diplococcus pneumoniæ.

I subjoin a chemical analysis of two different portions of the lung which has been carried out by Mr. H. A. Scholberg, M.B.

F. W. ANDREWES, M.D., F.R.C.P.

Pathological Laboratory,
St. Bartholomew's Hospital, E.C.,
March 25th, 1901.

Report on the mineral salts found in the lung substance.

Two separate samples of lung tissue were taken—

A. A portion shewing the greatest amount of change to the naked eye.

B. A less affected portion of the lung.

Analysis of Sample A. :—

Lung dried at 100° C to constant weight... ... 4·0660 grammes.
Total ash after incineration ... ... 0·1303 „
Percentage of inorganic ash ... ... 3·2045 per cent.

Mineral Constituents of Ash in ·1303 grammes.	Grammes.	Percentage in Ash.
Silica present as SiO_2	·0313	24·021
Aluminium present as Al_2O_3	·0506	39·678
Iron present as Fe_2O_3	·00633	4·834
Calcium present as CaO	·0180	14·581
Magnesium present as $Mg_2P_2O_7$	·0152	11·665
Potassium, Sodium as chlorides	·0075	3·249
		98·028
Error		1·972
		100·000

(Error probably due to difficulties in estimating potassium and sodium salts).

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Analysis of Sample B.:—

Weight of dried lung taken ... ... 4·1350 grammes.
Weight of ash after incineration ... ... 0·1245 „
Percentage of ash to dried lung ... ... 3·0108 per cent.

The ash contained the following salts, of which the percentages of the three most important are as follows:—

	Grammes.	Percentage.
Silica present as SiO_2	·0449	36·064
Iron and Alumina together as Al_2O_3 and Fe_2O_3	·0627	50·036
Calcium as CaO	·0098	7·871
		93·971

(The fact that the silica is actually more abundant in the part of the lung apparently less affected may perhaps be explained by the large amount of diffuse pigment found microscopically in those parts, and the scantier amounts in the densely fibrous areas.—F.W.A.)

At this particular works it is believed that the conditions of work are decidedly better than they formerly were owing to (1) improved ventilation of the mines (2) the introduction of a steam jet at the crusher, (3) wet grinding instead of dry, and (4) substitution of sawdust for ganister dust in the finishing process of brickmaking.

Improved conditions of work cannot be expected to affect the death returns materially for some years to come, seeing that there are at present working those whose lungs are already damaged.

The whole change brought about by the dust in the lungs is an effort to get rid of the dust, and therefore a healing process. In the same way as in tubercular phthisis, if the process be not too far advanced the effort is towards repair. The fibrosis of the lung tissue, brought about by ganister, would not progress if cessation from the particular work on the onset of early symptoms were the rule, and this suggests as an effective means of prolonging the lives of the workers the institution, say once every six months of a careful examination of the chests of all ganister workers and more especially of miners, with power to the medical man appointed to make the examination of suspending, temporarily or permanently from work those who he finds show lesions of the lungs.

Tetanus and Jute Mills.—It will be remembered that in the last Annual Report the richness of the dust of jute mills in Dundee in tetanus spores was pointed out, and stress laid on the possibility of the cases of tetanus which had followed on laceration received from batching machines being attributable to tetanus spores brought over from India in the mud clinging to the roots of the fibre.

Inquiry was kindly made in India by Colonel T. H. Hendley, Inspector General of Civil Hospitals for Bengal, as to any special incidence of tetanus on jute workers there, but the replies received from the Civil Surgeons of the districts in which jute is largely grown did not lead him to suppose that there was any special connection between jute and tetanus, such as exists between wool sorting and anthrax. Two samples of the soil in which jute is grown, and one of mud from Calcutta streets were forwarded for bacteriological examination by Dr. Chatterjee. Dr. Andrewes, who examined the samples, reported that typical tetanus was developed by the samples of Calcutta mud, and that while one sample of jute soil was inert, from the other in the fluid at the seat of inoculation a few bacilli morphologically identical with sporing tetanus bacilli were found. More recently the subject has been investigated bacteriologically by Major Drury, I.M.S., Professor of Pathology, Medical College, Calcutta, in conjunction with

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Assistant Surgeon Chatterjee. Positive evidence of the presence of tetanus bacilli was found in three out of eleven samples of earth from jute fields, and in five out of thirteen samples of mud from the streets of Calcutta.

Chemical Analysis of Dust.—The following chemical analyses were kindly undertaken by Dr. Thorpe for me in the Government laboratory :—

I.—Samples of (1) China red, and (2) China red mixed with yellow chrome used in boot finishing.

The China red (marked 1) consists of the basic chromate of lead which is represented by the formula $PbCrO_4$, PbO, and contains 81·6 per cent. of oxide of lead; the mixed China red and yellow chrome (marked 11) consists of the basic chromate, just referred to, mixed with the yellow chromate of lead, $PbCrO_4$, together with lead sulphate, $PbSO_4$, and 4·21 per cent. of barium sulphate. Yellow chromate of lead contains 69 per cent. of oxide of lead, and it is customary to lower the colour to the tint required by the addition of lead sulphate, though sometimes barium sulphate is wholly or partly substituted. This, therefore, accounts for the sulphates of lead and barium present. You will note that with the exception of 4·21 per cent. of barium sulphate the pigments forwarded are wholly salts.

II.—A "fur" separated from the rabbit skin brushed with solution of nitrate of mercury.

The sample consisting of fur with two particles of skin contains 1·39 per cent. of nitrate of mercury.

III.—(1) Common rouge for machine polishing, (2) putty powder, (3) handing rouge. (These were sent as a case of suspected arsenical poisoning, was attributed to one or other.)

The three samples of polishing powders marked as above have been examined for arsenic as desired, and found to be quite free from this substance.

IV.—Fusible base used in the fixing of opal glass paints, from the use of which a case of lead poisoning resulted.

The sample of "fusible base" has been found to contain 54·27 per cent. of lead, calculated as the monoxide.

This lead, however, is not present in the form of carbonate, the specimen being a boro-silicate of lead having the following composition :—

	Per cent.
Silica	23·45
Lead Monoxide	54·27
Alumina	6·42
Zinc oxide	0·48
Lime	2·11
Magnesia	0·33
Sodium oxide	3·75
Potassium oxide	0·54
Boron trioxide	6·48
Water and organic matter	2·32
	100·15

When tested in the manner adopted for determining the "soluble lead" in fritts and glazes used by potters, *i.e.*, when shaken with dilute hydrochloric acid of 0·25 per cent. strength, the sample gives up practically the whole of its lead. The material, therefore, in any stage—both in the preparation and in its subsequent handling—is liable to give rise to lead-poisoning.

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V.—Two samples of glaze and one of a black powder used in the enamelling of copper letters and a sample of wall paper from which a supposed case of arsenical poisoning had occurred.

—	Lead as Lead Oxide (Pb O).	Arsenic as White Arsenic (As O).
A.—Black powder	67·13	Not examined.
B.—Glaze	47·76	5·92
„	38·89	6·88

The examination of the small piece of wall paper did not afford evidence of the presence of any arsenic.

VI.—Two powders for enamelling copper letters :—

A. Hard white powder contains lead equal to 44·05 per cent. of lead oxide and arsenic equal to 4·37 per cent. of arsenious acid.

B. Soft white powder contains lead equal to 0·45 per cent. of lead oxide and 0·10 per cent of arsenic as arsenious acid.

Dr. Andrewes, of St. Bartholomew's Hospital, in addition to his work on ganister disease of the lungs examined bacteriologically a sample of English horsehair suspected of anthrax with negative result ; a sample of dust from a hide and skin warehouse where frequently cases of anthrax had occurred, also with negative result. In two doubtful cases of anthrax in the human subject typical bacilli were found in one case but not in the other. In the latter case the amount of material was very small, and in such a case it is clear that the responsibility for the diagnosis must rest with the medical practitioner, and not with the bacteriologist.

Gas Poisoning.—In April a man employed in cleaning out the lime purifiers of the water gas plant of one of the large London gas companies died under circumstances which led to much inquiry and dispute as to the cause of death. At the inquest a verdict was brought in by the jury that death was due to poisoning from sulphuretted hydrogen gas, and they added a rider that sufficient precautions were not taken by the company in the purifying house where the deceased worked. In the opinion of both Mr. Ireland (*East London*) and myself there was absolutely no justification for the rider, and I was not satisfied that the verdict as to the cause of death was correct.

The following is an account of the circumstances of the case from notes made by Mr. Ireland (East London) :—

I investigated at the ——— gas works, and attended the adjourned inquest on the death of ———, 38, who, it was supposed, had died from the effects of gas poisoning contracted in the course of his employment at these gasworks, in which he had been employed for about 13 years.

Part of his employment was the charging and discharging of the carburetted water-gas purifiers. These are sheet-iron chambers, arranged in series of four or five, about 57 ft. long, 27 ft. wide, and 5 ft. deep, in which are placed six layers of grids containing lime. The gas to be purified passes through these chambers, and in its passage gives up to the lime its hydrogen sulphide (H_2S), and carbon dioxide (CO_2), these being present in the gas as impurities. In the process of purification the lime first takes up the H_2S to form sulphide of lime (CaS), but the latter is split up by the CO_2 present in the gas, it having a greater affinity for the lime than the H_2S, and forms carbonate of lime ($CaCO_3$). The sulphuretted hydrogen thus set free is driven by the union of the CO_2 with the lime through the series of purifiers to a receptacle in the last one, where there is a special arrangement for recovering it. During the process of purification a tarry deposit is formed at the bottom of the chambers, this deposit containing in solution a quantity of the very volatile hydro-carbons present in the carburetted gas. When the lime has become saturated, the gas is shut off and air is blown through the purifiers for six hours before the cover is taken off for the men to discharge the purifier. This has the effect of clearing off any free gases which may be present in the lime.

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The gas effects which may be looked for are those of carbon monoxide (CO) and sulphuretted hydrogen (H_2S). The water-gas contains about 35 per cent. of the former and 0·3 per cent. of the latter.

From my experience of gassing, and from my investigation of the circumstances, I am disinclined to believe that the deceased was gassed, as the effects are immediate, the man being attacked while in the poisonous atmosphere, gradually recovering, if he does recover, once he is able to breathe good air. I have never known, or heard of, any fatal case of gassing where the man was able to walk after emerging from the contaminated atmosphere. The deceased, however, although he complained of being ill and was retching violently several times during the morning before breakfast on the day on which he was last working, resumed work after breakfast, completed discharging the purifier, and was employed charging it *with fresh lime*, when there could be *no poisonous* gases present, at the time that he became so ill that he had to leave off work, about 11 a.m. Further, he was able to walk to the station, a distance of over half a mile, and from the station to his home. He became gradually worse after reaching there, and was in a state of collapse at 11 p.m., dying at three o'clock the following morning. The increasing effect after reaching fresh air seems to me to point to some other cause than gassing in the purifier.

My opinion was confirmed by experiments made by the company after the occurrence, and by me when I investigated the matter. They placed in three test tubes a solution of blood. Through these they passed respectively water-gas, ordinary air, and air from the purifier taken after only a *two hours*' blow through. The water-gas turned the blood solution pink immediately, ordinary air had no effect, and the only effect of blowing through the air from the purifier was to destroy the turbidness of the blood solution and to render it clear and transparent. I examined the result of the experiment at the time of my visit. At the time of my visit I got the cover of a purifier removed. This had had the usual blow through, and the men shovelled the lime up in the usual way. I could smell no trace of H_2S, and on applying the acetate of lead paper test the paper was practically unaffected, showing that there was probably less than $\frac{1}{50}$ per cent. of H_2S present, a proportion which would be innocuous.

From my own notes I quote the following :—

He received no medical aid at the works, returned home by train and was seen by a medical man at 3 p.m. the same day, and again at 11 p.m., when he was found collapsed, with features pinched, in a cold sweat and almost pulseless. He died the following morning at 2.30 a.m. At the post mortem made on the 12th, the body appeared of a greenish grey colour, the blood was dark in colour, but no abnormal condition of the organs was found. No examination of the blood was made, and the opinion as to the cause of death was arrived at on general grounds.

As the gas company had not been informed that a post mortem was to be held, the Coroner consented to a second post mortem, which was made by Dr. Grogono, divisional surgeon, on the 16th inst., and at which Dr. Pepper, of St. Mary's Hospital, was present for the Company. Dr. Grogono formed the definite opinion that the dark colour of the blood, its very fluid nature, the rapid putrefaction, pointed to sulphuretted hydrogen poisoning. He had made post mortems on four other persons where sulphuretted hydrogen poisoning had been the cause of death, and the appearances were the same.

Dr. Pepper considered death might have been due to (1) sudden onset of an acute illness (2) ptomaine poisoning from ingestion of food and (3) sulphuretted hydrogen gas. From the submucous hæmorrhage in the stomach, the swollen mucous membrane of the small intestines, the presence of diarrhœa as a symptom during the illness, he believed that (2) was the probable cause of death. He examined the blood for CO spectroscopically, but with negative results. No weight, however, appears to have been attached to the fact that if a person poisoned by CO lives for five or six hours after removal from the poisonous atmosphere, no carbonic oxide will be found in the blood.

For the company it was urged that in 25,000 c.c. of air above the purifying vessel no CO could be detected. The proportion of CO and H_2S in the unpurified water gas was 31 per cent. and ·003 per cent. respectively, and therefore the possibility of anything more than a trace of H_2S having been present, that is far less than the ·01 per cent. which makes its presence dangerous was denied.

Reference was made to two men working in the same chambers who had been affected since this man's death with symptoms described as semi-intoxication and attributable probably to the pungent vapour from a petroleum oil contained in small quantity in the lowest layers of the lime.

If the death was due to either CO or H_2S, it is remarkable that it should have ensued so rapidly after a dose so slight that he was able to return home by train.

At the company's works an excellent oxygen inhalation apparatus is kept. The men are examined medically before entering the works, but it is probable that in future care will be taken to see that men exposed to gases will be specially examined as to the condition of heart and lungs.

The history of this case bears a very striking resemblance to the death of a man in 1899, in charge of an engine through which air and water gas were pumped for welding

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purposes. In that case, which I inquired into at the time, the jury brought in a verdict that death was due to failure of the heart's action, accelerated by water gas poisoning. In this case also the man was not overcome by gas at his work. He was able to walk home, and died three hours afterwards. The post-mortem appearances were not suggestive of carbonic oxide poisoning.

In both cases, however, the heart muscles may have been damaged by carbonic oxide, and cardiac failure have been induced by the exertion consequent on walking home.

Too much importance cannot be attached to the remarks by Dr. Haldane* :—

"The after symptoms of carbonic oxide poisoning are often of a serious nature. It must be remembered that during the period when the oxygen supply to the tissues is diminished they may undergo serious damage, and that the effects of this damage may remain for long after all the carbonic oxide has been eliminated. The headache and nausea which commonly follow exposure to carbonic oxide are one sign of slight temporary damage. Often, however, far more serious signs are met with. In many cases of long exposure consciousness never returns, although the blood is quite free of carbonic oxide; in other cases serious mental symptoms remain for a long time; in others there are symptoms of formidable affections of the heart muscle; in others fatal supervenes after a day or two. In the after treatment of carbonic oxide poisoning too much care cannot be exercised, on account of the probability of some organ or another being seriously damaged, and ready to break down unless it is given complete rest."

Ventilation.

In the last Annual Report it was stated that steps had been taken for the analysis of samples of air from other factories to which the Special Acts do not apply.

Mr. Wilson (*Dundee*), struck by what he considered to be the very foul condition of the atmosphere of jute spinning rooms, especially towards the evening when the effects of the consumption of gas had manifested themselves, arranged with Professor Walker, F.R.S., of University College, Dundee, to have analyses of the air made.

Professor Walker describes the method he adopted as follows:—

The method adopted for estimating the amount of carbon dioxide in the samples of air was a modification of the method of Pettenkofer. In its original form, this method invariably gives too high results, owing chiefly to the exposure of the excess of baryta to the atmosphere during the operations of titration, &c. This source of error was avoided by filtering the liquid, after absorption of the carbon dioxide, through a small asbestos filter (such as is employed in sugar analysis) into a known excess of hydrochloric acid, the whole of the baryta being washed out of the sample bottle by means of a very dilute solution of barium nitrate. All these operations were conducted in a partial vacuum, atmospheric air being entirely excluded. The residual hydrochloric acid was then titrated with 0·02-normal baryta solution.

In order that a comparison of the original and modified methods may be effected, I subjoin one or two results where both modes of analysis were adopted.

Pettenkofers' Method.	Modified Methods.	Difference.
4·4	3·7	0·7
4·1	3·5	0·6
26·4	26·2	0·2

* "Report on the Manufacture and Uses of Water Gas and other Gases containing a large proportion of Carbonic Oxide," pp. 71 and 72.

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The numbers express the volumes of carbonic acid contained in 10,000 volumes of the air examined. In general it may be said that where the quantity of carbonic acid estimated is small, the difference between the two methods is greatest. An account of the modified method will shortly be published in a chemical periodical.

The samples, the analyses of which are given below, were collected in dry Winchester quart bottles varying in capacity from 2·6 to 2·8 litres.

Date of Analysis.	No. of Bottle.	Vols. CO^2 in 10,000 Vols. Air.
20th March	1	8·1
„ „	2	9·6
26th „	3	3·1
„	4	3.3
„ „	6	5·4
„ „	7	7·0
„ „	8	7·5
„ „	9	7·0
„ „	10	9·8
, „	11	9·3
4th April	12	5·8
, „	14	6·0
13th „	13	10·3
, ...	15	5·3
... ...	16	8·3
, „	17	4·2
„ „	18	6·2
14th „	19	26·4
„ „	20	17·6
„ „	21	13·9

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The particulars regarding the samples of air submitted to Professor Walker by

—	No. of Sample.								
	1.	2.	3.	4.	6.	7.	8.	9.	10.
Date and hour when sample collected.	5.30 p.m., March 20, 1900.	5.40 p.m., March 20, 1900.	11.30 a.m. (Sunday), March 25, 1900.	11.50 a.m. (Sunday), March 25, 1900.	1.30 p.m., March 26, 1900.	1.40 p.m., March 26, 1900.	1.55 p.m., March 26, 1900.	5.15 p.m., March 26, 1900.	5.30 p.m., March 26, 1900.
Precise room and process carried on.	Spinning, Middle floor.	Cop winding, Top floor.	Spinning, Ground floor.	Spinning, Middle floor.	Spinning, Ground floor.	Spinning, Middle floor.	Spinning, Middle floor.	Spinning, Ground floor.	Spinning, Middle floor.
Part of room where sample collected.	Centre	Centre	Centre	Centre	Centre	Centre	Centre	Centre	Centre
Number of persons employed.	52	15	300	150	300	150	83	300	150
Height of room	11 ft.	8 ft.	21 ft.	11 ft. 6 ins.	21 ft.	11 ft. 6 ins.	13 ft.	21 ft.	11 ft. 6 ins.
Total cubic contents of room	39,446	18,040	462,840	100,388	462,840	100,388	83,856	462,840	100,388
Cubic space per head ..	758 c. ft.	1,202	1,542	669	1,542	669	1,010	1,542	669
Temperature, inside ..	71°	66°	49°	50·5°	70°	77°	77°	75°	61·5°
„ outside..	41°	41°	43°	43°	41°	41°	41°	40°	40°
Ventilation—	Natural	Natural	Natural	Natural	Natural	Natural	Natural	Natural	Natural
Outlets provided ..	Windows only.	Windows only.	Windows	Windows	Windows	Windows	Windows	Windows	Windows
Proportion of open windows.	5 out of 25	All shut	All shut	All shut	Three-fourth shut.	6 open (out of 42)	One-third open.	One-fourth open.	One-third open.
Number of gas lights ..	None	None	None	None	None	None	None	None	None
State of weather ..	Cold and squally.	Cold and squally.	Cold and fresh wind.	Cold and fresh wind.	Cold and strong wind.	Cold and strong wind.	Cold and strong wind.	Cold and strong wind.	Cold and strong wind.
Direction of wind ..	East (off sea).	East (off sea).	North East	North East	North East	North East	North East	North East	North East
CO_2 in 10,000 vols. of air	9·1	9·6	9·1	9·3	9·4	7·0	7·5	7·0	9·3

Owing to an accident Sample 5 was rendered useless by the cork being knocked out. It was thought unnecessary to repeat it owing to the close agreement of Nos. 3 and 4 taken the same day in similar circumstances.

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Mr. Wilson are as follows :—

No. of Sample.										
11.	12.	14.	13.	15.	16.	17.	18.	19.	20.	21.
5.50 p.m., March 26, 1900.	1.40 p.m., April 4, 1900.	1.50 p.m., April 4, 1900.	5.10 p.m., April 12, 1900.	5.30 p.m., April 12, 1900.	5.50 p.m., April 12, 1900.	1.45 p.m., April 13, 1900.	1.55 p.m., April 13, 1900.	7.40 p.m., April 13, 1900.	8 p.m., April 13, 1900,	11.40 a.m., April 14, 1900.
Spinning, Middle floor.	Spinning, Middle floor.	Spinning, Middle floor.	Spinning, Ground floor.	Spinning, Second floor.	Spinning, Middle floor.	Weaving, Ground floor.	Spinning and winding, Ground floor.	Dress-making, Middle floor.	Linotypes and type setting, Top room.	Tailors, Pressing and sewing garments.
Centre	Centre	Centre	Centre	Centre	Centre	Centre	Centre	Centre	Centre	Centre
83	41	57	170	77	55	101	70	10	57	20
13 ft.	10 ft.	11 ft. 1 in.	20 ft. 6 ins.	13 ft.	13 ft.	20 ft. 5 ins.	15 ft.	9 ft. 5 ins.	20 ft.	10 ft.
83,856	28,431	48,240	287,245	73,646	38,400	250,120	101,010	2,590	60,000	9,000
1,010	696	846	1,689	956	1,097	2,470	1,443	259	1,053	331
83°	83°	78°	80°	79·5°	74·5°	69°	78·5°	69°	75°	71°
40°	46°	46°	51°	51°	51°	54°	54°	49°	49°	51°
Natural	Natural	Natural	Natural	Natural	Natural	Natural	Natural	Natural	Natural	Natural
Windows	Windows	Windows	Windows and one door.	Windows	Windows	Windows and doors.	Windows and one door.	Windows	Windows	Windows and Tobin tubes.
One-third open.	Three-fourths well open.	Three-fourths well open.	One-fourth open and one door.	Three-fourths open.	12 open (out of 16).	One-third windows open and two doors.	One-fifth windows open and one door.	One fan light.	One open and one door.	Nine-tenths open.
None	None	None	None	None	None	None	None	Three	Electric light.	Electric light (not using).
Cold and strong wind.	Cold	Cold	Mild, Fairly strong wind.	Mild, Fairly strong wind.	Mild but fairly strong wind.	Mild but strong wind.	Mild but strong wind.	Cold, Strong wind (falling).	Cold wind (falling slight).	Cold, High gale.
North East	Practically none.	Practically none.	North	North	North	North	North	North	North	West
9·3	5·8	6·0	10·3	5·3	8·3	4·2	6·2	26·4	17·6	13·9

All samples except Nos. 19, 20, and 21 were taken in Jute Mills. No. 19 was in a dressmaker's workshop, No. 20 in a large linotype room in a printing establishment, and No. 21 in a clothing factory.

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Commenting on the results of these analyses, *Mr. Wilson* observes :—

The figures show a surprisingly small proportion of CO_2 in all, except a few instances, and in two of these the conditions were affected by the consumption of gas for lighting and heating purposes.

The samples were collected in dry Winchester quart bottles, provided with ground glass stoppers, the latter being lubricated with a special composition, and the stoppers were sealed before the samples were removed from the various works.

The atmospheric conditions were, unfortunately, somewhat unfavourable for the collection of air samples under normal conditions, owing to prevailing high winds rising on certain days to gales. The remarkable divergence between the outside and inside temperatures, taken along with the rapid air movement prevailing outside undoubtedly account for the distinctly low proportion of CO_2 found in the majority of the samples analysed.

The large cubic space per head will be remarked in the case of the jute factories, and this, together with the proportion of open windows, and the exposed position of Dundee on the estuary of the Tay, will also help to explain the comparative purity of the atmospheres examined.

The results, therefore, must be considered as indicating the inside atmospheric conditions under the most favourable circumstances.

In calm summer weather when the outside temperature is little below that existing inside the factories, there is slight air movement, and consequently the inside atmospheres feel extremely vitiated and unpleasant.

In November, December, January, and February, when the external temperature is so low as to debar the extensive opening of windows, and when gas is in use both morning and evening for illuminating purposes, the impurities due to respiration and the consumption of gas are most marked; then, in all probability, the CO_2, if estimated under these circumstances, would be very much higher than the results shown in the accompanying form.

In the cases of Nos. 7, 8, 10, and 11, the air appeared very vitiated, as well as oppressingly hot, at the time the samples were taken; but the amount of CO_2 is by no means large. This may be accounted for in two ways. *Firstly*, the heat radiated by the machinery is very great, raising the inside temperature enormously, notwithstanding the cold outside air blowing in at open windows. *Secondly*, the amount of lubricating oil evaporated by hot bearings is considerable, and this, taken in conjunction with the odour emanating from the material—which is oiled before being operated upon—is quite sufficient to render the atmosphere unpleasant, if not particularly unwholesome.

The CO_2 shown in the results is entirely due to respiration, there being, except in the case of Samples Nos. 19 and 20, no gas used for illumination so late in the year as the end of March.

The results being so uniformly good in Jute factories, I considered that samples from other premises were desirable. Accordingly, No. 19 was taken at 7.40 p.m., in a room in which the cubic capacity was 259 feet per head, and wherein three gas jets were, and had been, in use for an hour. The results show the highest CO_2 of any of the samples analysed.

No. 20 was taken in a large composing-room at the office of the ————.

There were eight Linotype machines in use, each with a Bunsen flame for melting the type metal, electric light being the illuminating medium. The CO_2 is rather high and bears out my contention that the ventilation of this room is imperfect.

No. 21 relates to a somewhat crowded room in a clothing factory, the cubic space being 331 feet per head, and shows a fair amount of CO_2, notwithstanding open windows, a high gale, and an exposed position, the room being at the top of a four-storied building.

It may be interesting to note that the rooms referred to in samples number 7, 9, 10, 11, and 13, have been considered in the past as badly ventilated, and in the case of sample number 13 fans have been purchased with a view to erection before the summer commences.

Samples number 3, 4, 6, 7, 8, 9, 10, 11, were taken as shown in the report before work commenced, immediately before the dinner-hour (which in Dundee is from 2 to 3 p.m.) and before 6 p.m., and shows distinctly the gradual vitiation of the air towards the close of the working day.

Reports by Medical Officers of Health.

Several medical officers of health have been good enough to forward copies of their annual reports for 1899. The most noticeable feature in them is the effort that is being made to educate the masses to a right appreciation of the infectiousness of consumption.

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The following list of the number of factory and workshop inspections is of interest:—

Blackburn	2,277
Huddersfield	385
Manchester	16,555
Liverpool	6,189
Halifax	1,326
Salford	1,233
Nottingham	4,559
St. Pancras	2,428

Dr. Wheatley (*Blackburn*) thus refers to the improvement in health in the cotton industry:—

"The health conditions under which the cotton operatives work are improving rapidly. When the clause of the last Order referring to atmospheric impurity has been effectually carried out it may, I think, safely be said that, as regards respiratory impurity, the air of weaving sheds will bear favourable comparison with that of any other workrooms. However good the ventilation may be the result will not be entirely satisfactory unless more attention is directed to cleanliness of the sheds. The floors of many weaving sheds are often extremely dirty, and they very rarely get properly cleaned. It can be well understood that a floor which is coated with grease, cotton fibre, size dust, mixed, no doubt, with sputum and other noxious matter, may be a source of considerable danger. The air of a weaving shed is in a state of constant circulation, due to ventilating apparatus and to the movement of straps, &c., and particles are readily detached from the floors and carried into the atmosphere of the shed. The provision of a reasonably clean water for steaming purposes is now being carried out. The only other improvement to which I wish to call attention is the provision of electric light in the place of gas. This is a very great sanitary improvement, and I understand that in most instances it can be carried out with no additional cost. Whatever ventilation is adopted, it is almost impossible with gas to make the air of the shed satisfactory."

Dr. Niven (*Manchester*), on the question of the communicability of phthisis, cites 33 cases in which the history points to infection having been caught from employment in the various workshops and warehouses by work carried on in close proximity to persons known to be consumptive.

The following is a copy of a notice affixed in workshops in Manchester:—

NOTICE AS TO SPITTING AND CONSUMPTION.

"Spitting on the walls or floor of a workshop is highly dangerous to the health of fellow workers as well as to the person who does it. It is often dangerous also to the users of goods made therein. Consumption, diphtheria, and other fatal diseases are thus communicated.

"Those obliged to spit should use a piece of paper, which should be at once burned; or, if it cannot be burned at once, it should be folded up in such a way as not to soil the pocket, and burned as soon as possible. No paper should be used twice. Ordinary pocket handkerchiefs should not be used since they scatter infection."

Dr. Hope (*Liverpool*) gives the following summary of investigations carried out in the laboratory of Dr. Boyce, Professor of Pathology in University College, Liverpool, of anthrax in tanneries:—

Several cases of anthrax having occurred during 1899 amongst the workers of the tan yards, four of which proved fatal, a thorough investigation of the vats, hides and dust of the tan yards was made. The *bacillus anthracis* was found in large quantities in the gloves which the workmen used whilst cleaning the hides. The bacillus was also found in the vats used for macerating the hides, and in the dust of the yards.

It was evident that the anthrax was introduced from the hides taken from infected animals, and a special investigation was then made of the ships which brought over the hides from Eastern ports. This resulted in finding the anthrax bacillus in the dust of a hold from a ship which had contained bales of hides. Subsequently an investigation was made to ascertain the kind of disinfectant which could be relied upon to destroy the anthrax bacilli (which is one most tenacious of life), but without injuring the hides.

Dr. Porter (*Stockport*) has the following note as to the prevalence of phthisis in Stockport:—

During the five years 1895-1899, the total number of deaths from all causes within the borough was 8,500. Of these, 965 were attributed to tubercular diseases, including 217 from phthisis. Thus, tuberculosis in one form or another was responsible for 11·3 per cent. of all

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deaths, or in other words for about one out of every nine deaths which occurred. The statistics for Stockport therefore show exactly the same state of affairs, as regards the incidence of tuberculosis, as obtains in England and Wales generally. This is rather remarkable, having regard to the dusty nature of certain processes of the staple industries—hatting and cotton.

Dr. Haworth (*Darwen*) for a population of 37,000 continues his analyses of the cause of death according to occupation, the results of which must in time be useful.

Weavers.—There were 14 males and 22 females, making a total of 36 deaths. It will be noticed that the men died younger than the women, pointing to the fact that the men are prone to seek other occupations during the latter part of their days, whilst the women stick closer to this trade. Consumption caused more deaths than any other disease.

Quarriers.—Five deaths, two of these from phthisis. From the nature of the occupation, it is presumed this was what is called fibroid phthisis, and not the tubercular kind.

Masons.—Three deaths, all from diseases of the lungs.

Dr. Sykes (*St. Pancras*) summarises the duties of Sanitary Authorities and of the Home Office in relation to outworkers as follows:—

The occupations principally concerned are those in which wearing apparel, furniture, and upholstery are made.

The outworkers in these trades work either in workshops for mixed persons, in workshops for adults only, in workshops for male adults only, in domestic workshops, or in their own rooms.

Workshops for mixed persons employ children, young persons, women, and men, the control of employment for the protected persons (that is, all except the men) being under the supervision of the Factory Inspector and the Home Office, and the control of the sanitary condition of the premises being under the Workshop Inspector and the Sanitary Authority.

Workshops for adults only, employ women and men, the control of employment of the women being under the Home Office, and the sanitary condition of the premises under the Sanitary Authority.

Workshops for male adults only are subject only to the control of sanitary conditions by the Sanitary Authority.

Domestic workshops, that is, places used as workshops in which only members of the same family dwelling there are employed, are subject to regulations with regard to the hours of labour under the control of the Home Office, and to the supervision of sanitary conditions by the Sanitary Authority.

In their own rooms outworkers may work subject only to the supervision of sanitary conditions by the Sanitary Authority.

A large number of outworkers work in their own rooms, and a large number in domestic workshops.

Briefly, the object of these lists of outworkers is threefold: firstly, to control the employment of outworkers as to limits of age, fitness, hours, and periods, and as to safety from fire accidents, and injury; secondly, to control the sanitary condition of premises; and thirdly, to prevent the spread of infectious diseases.

It is evident that the duties of the Sanitary Authority in reference to outworkers are as important as those of the Home Office although different in kind, but whereas the Factory Inspector is supplied with lists of outworkers every six months, the Workshop Inspector is restricted to inspecting the lists at the factories and workshops.

The first step towards carrying out their duties periodically in regard to outworkers in a continuous manner by the Sanitary Authorities, would be to provide that these authorities should be supplied with lists, either in the same manner as Factory Inspectors are now supplied, or else from the Home Office. If this initial facility is not given, one must reluctantly conclude that the Government intends to attach less importance to the duties of Sanitary Authorities in reference to outworkers than of those of the Home Office.

On the same subject of outworkers, the following is the report by Miss Alice Teebay, Inspector of Workshops, Laundries, &c., of the Hackney Borough Council:—

I began the systematic inspection of outworkers' premises in March, 1900. Lists of names and addresses of persons employed as such are required from the occupiers and workshops who employ them, as also from occupiers of places from which any work of making wearing apparel is given out. I have registered all outworkers resident in this Borough whose names have been acquired since March, and have now 630 on the register. Of these 345 have been visited. In two cases, upon my first visit, I was refused admission by outworkers to their houses, but was admitted a short time subsequently upon calling a second time. With the above figures to go upon, and after a nine months' trial, I have come to the conclusion that, with the large number of workshops to be supervised, half the number of outworkers' premises registered is

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as large a proportion as I shall be able to inspect. I found nuisances existing on 113 premises occupied by outworkers. All these nuisances were handed over by the Medical Officer to the Sanitary Inspectors of the different districts to be dealt with. Copies of a notice drafted by the Medical Officer have been sent to all employers of outworkers. This notice draws attention to those sections of the Factory and Workshop Acts, 1891 and 1895, which prescribe the duties of occupiers of factories and workshops, and of any place from which any work of making wearing apparel for sale is given out, as to the keeping of lists of persons employed by them outside the factory, workshop, or place, if so required by the Secretary of State by an order made in accordance with section 65 of the principal Act, and also to the fact that every such list shall be open to inspection by any Inspector under the principal Act, or by any officer of a Sanitary Authority. A large number of names of outworkers living in this district, but working for employers in other parts, have been forwarded to us by various local authorities this year. Of any work being now done in the inspection of outworkers' premises, we may justly consider ourselves the pioneers, for until Hackney led the way, I cannot learn that any initiative was taken in the matter.

Dr. Barwise (*Derbyshire County Council*) has issued a copy of the following circular of the duties of Sanitary Authorities in connection with the Factory Acts to each Sanitary Authority :—

Duties of Sanitary Authorities under Factories and Workshops Acts.

It is not generally understood that the sanitary condition of all workshops, that is to say, works where no steam, water or other mechanical power is used, is now under the supervision of the various District Councils.

1895 Act, Section 41.

Every person in occupation of a workshop shall serve on the Factory Inspector for the district a written notice containing the name of the workshop, the place where it is situate, and the address to which letters should be addressed. Any notice so served shall be forthwith forwarded to the Sanitary Authority of the district in which the workshop is situate. The powers under this section will enable the Sanitary Authority to obtain a complete list of all workshops within their districts.

1895 Act, Section 1.

Any workshop shall be deemed to be overcrowded and dangerous to health, within the meaning of the 91st section of the Public Health Act, if the number of cubic feet per head is less than 250, or, during overtime, 400 cubic feet per head.

1891 Act, Section 4.

Every workshop must be kept free from effluvia arising from any drain, water closet, earth closet, privy, urinal, or other nuisance, and unless so kept shall be deemed to be a nuisance within the meaning of the Public Health Acts.

Where the Medical Officer or Inspector of Nuisances notifies to any Sanitary Authority that the limewashing and purifying of any workshop is necessary for the health of the persons employed therein, the Sanitary Authority *shall* give notice in writing to the owner or occupier to cleanse or purify the same. If the owner or occupier fails to comply he is liable to a fine of 10s. a day during such time as he makes default, and the Sanitary Authority may cause the workshop to be limewashed, cleansed, or purified at the expense of the owner or occupier.

1878 Act, Sec. 4; 1891 Act, Sec. 2 (2); 1895 Act, Sec. 3.

Where it appears to the Inspector of Factories that there is any neglect or default in relation to any drain, water closet, earth closet, privy, ashpit, water supply, nuisance, or other matters remediable under the Public Health Acts, it is his duty to give notice of such nuisance to the Sanitary Authority, and it is the duty of the Sanitary Authority to inform the Inspector of the proceedings taken in consequence, and if no proceedings are taken within one month, the Inspector may take proceedings as if he were the Sanitary Authority, and is entitled to recover all expenses he incurs in and about the proceedings from the Sanitary Authority.

1883 Act, Sec. 17.

With regard to retail bakehouses, the duty of enforcing the clauses of the Factory and Workshop Act which relate to cleanliness, ventilation, overcrowding, and other sanitary conditions devolves upon the Sanitary Authority, and the Medical Officers of Health have the same powers of entry, inspection, and taking legal proceedings as an Inspector under the Factory and Workshop Act, 1878.

1883 Act, Section 15.

The following special provisions apply to bakehouses :—

(1.) No water closet, earth closet, privy, or ashpit shall be within or communicate directly with the bakehouse.

(2.) Any cistern for supplying water to the bakehouse shall be separate and distinct from any cistern for supplying the water to a water closet.

(3.) No drain or pipe for carrying off fœcal or sewage matter shall have an opening with the bakehouse.

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1895 Act, Section 35.

Every factory and workshop must be provided with sufficient and suitable accommodation in the way of sanitary conveniences for persons of both sexes, and where it appears to an Urban Sanitary Authority which has adopted the Public Health Amendment Act, 1890, on the report of their Surveyor, that sufficient and suitable accommodation is not provided, they may, if they think fit, require the owner or occupier to make such alterations and conditions as may be required.

In Rural Districts, and in Urban Districts which have not adopted the Public Health Amendment Act, a factory which does not provide suitable and sufficient separate accommodation for each sex shall be deemed not to be kept in conformity with the Factory Act.

1891 Act, Section 7.

The duty is imposed on all Sanitary Authorities to see that all Factories constructed after the 1st of January, 1892, in which more than forty persons are employed, of examining and certifying that the factory is provided on the storeys above ground with sufficient means of escape for the persons employed therein, and it is the duty of the Sanitary Authority from time to time to examine all the factories where more than forty persons are employed, and in the event of a factory not being so provided it is their duty to serve a notice on the owner or occupier within the meaning of the Public Health Act, 1875, specifying the measures necessary for providing such means of escape, and in the event of the notice not being complied with, the owner is liable to a penalty of £1 per day.

All expenses incurred by the Sanitary Authority in the performance of this duty shall be deferred in an Urban District as part of the cost of administrating the Public Health Act, 1875, and in a Rural District by a special charge on the contributory place in which the factory is situate.

I am, &c.,

T. M. Legge.

H.M. Chief Inspector of Factories.

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TABLES.

TABLE 1.—H.M. Inspectors of Factories and Assistants.

Corrected to April 10th, 1901. At this date there were vacancies for 2 Junior Inspectors.

Name. (1.)	Address. (2.)	District. (3.)	1900. Miles Travelled. (4.)	1900. Travelling and Personal Expenses. (5.)
Chief Inspector.				£ s. d.
R. A. Whitelegge	Home Office		—	—
Deputy Chief Inspector.				
R. Gould	Home Office		309	3 17 0
Superintending Inspectors.				
W. D. Cramp	39, Victoria Street, London, S.W.	Southern Division	2,414	30 16 5
R. W. Cooke Taylor	121, West Regent Street, Glasgow	Scotland and Ireland Division	4,474	73 18 8
W. A. Beaumont	35, Park Square, Leeds	North Eastern Division	7,456	189 7 5
J. A. Redgrave	35, Paradise Street, Birmingham	Midland Division	2,409	40 0 3
H. S. Richmond	72, Bridge Street, Manchester	North Western Division	4,050	47 6 8
Medical Inspector.				
T. M. Legge	Home Office		8,867	121 5 3
Engineering Adviser.				
R. H. Osborn	Home Office		7,080	154 10 7
Inspectors.				
*G. I. L. Blenkinsopp	39, Victoria Street, London, S.W.	West London	2,353	41 1 7
J. Jones (until Aug. 13th, 1900)		(*Plymouth until Aug. 13th, 1900*)	3,651	67 2 4
*H. W. S. Kindersley	1, Albyn Place, Edinburgh	South East Scotland	8,248	75 11 5
A. G. K. Woodgate	39, Victoria Street, London, S.W.	South London	5,643	89 11 6
C. C. W. Hoare	39, Victoria Street, London, S.W.	East London	7,144	65 16 5
J. S. Maitland	Carlton Chambers, Baldwin Street, Bristol.	Bristol	4,313	78 13 3
*H. P. Smith	21, Fargate, Sheffield	Sheffield	7,860	113 12 1
J. F. Bevan	21, Portland Street, Southampton	Southampton	7,339	117 0 9
*S. H. Knyvett	35, Paradise Street, Birmingham	Birmingham	1,443	14 4 8
*E. M. Roe	72, Bridge Street, Manchester	Manchester	1,239	8 10 8
A. P. Vaughan	39, Victoria Street, London, S.W.	North London	2,884	21 14 0
J. D. Prior	19, Market Street, Huddersfield	Huddersfield	1,731	28 6 10
J. A. Hine	1, East Parade, Leeds	Leeds	4,779	53 17 3
W. Williams	*118, Monton Road, Eccles*	*Textile Factories using Artificial Humidity.*	(*see below*)	(*see below*)
H. M. Robinson	121, West Regent Street, Glasgow	West Scotland	4,889	42 12 1
A. Lewis	51, St. Helens Road, Swansea	South Wales and Monmouthshire.	7,510	112 3 2
R. P. Arnold	38, Foregate Street, Worcester	Worcester	5,937	58 15 10
G. B. Snape	124, Donegall Street, Belfast	North Ireland	11,692	184 0 5
J. Pearson	Portland Chambers, 385, High Street, Lincoln.	Lincoln	10,495	118 13 10

* Appointed to act in the absence of the Superintending Inspector of the Division.

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TABLE 1.—H.M. Inspectors of Factories and Assistants—*continued.*

Name. (1.)	Address. (2.)	District. (3.)	1900 Miles Travelled. (4.)	1900 Travelling and Personal Expenses. (5.)
				£ s. d.
Inspectors—*cont.*				
J. T. Birtwistle	34, Richmond Terrace, Blackburn	Blackburn	674 (*see also below*)	6 7 9 (*see also below.*)
R. Tinker	72, Bridge Street, Manchester	Bolton	6721	112 2 6
G. Sedgwick	Victoria Parade, Gallowtree Gate, Leicester.	Leicester	3,359	41 12 4
*C. W. Shaw (until Nov. 10th, 1900)		(*South London* until Nov. 10th, 1900.*)	4,960	66 12 8
J. H. Walmsley	15, Glebe Buildings, Stoke-on-Trent	North Staffordshire	3,509	52 1 10
D. Walmsley	72, Bridge Street, Manchester	Cheshire	11,242	114 13 2
J. E. Ashworth	77, Darlington Street, Wolverhampton	Wolverhampton	9,750	144 17 8
R. Johnson (until Oct. 11th, 1900)		(*Newcastle until Oct. 11th, 1900*)	2,436	23 0 3
Joseph Law	91a, Fishergate, Preston	Preston	9,020	126 16 7
R. E. Graves	51, South John Street, Liverpool	Liverpool	1,666	26 15 5
J. H. Rogers	Babington Buildings, Derby	Derby	7,188	105 5 5
G. Bellhouse	12, Dawson Street, Dublin	South Ireland	12,694	196 9 11
O. A. Shinner	14, Rampant Horse Street, Norwich	Norwich	8,337	144 18 4
T. Birtwistle	*19, St. James Street, Accrington*	*Textile Particulars*	(*see below*)	(*see below*)
C. F. Wright	9, George Row, Northampton	Northampton	5,923	80 3 5
*C. R. Pendock	Carlton Chambers, Baldwin Street, Bristol.	(Bristol*)	8,102	130 18 11
J. Jackson	77, Darlington Street, Wolverhampton	South Staffordshire	4,056	40 3 4
H. J. Wilson	Prudential Assurance Buildings, Mosley Street, Newcastle-on-Tyne.	Newcastle (*East Scotland until Dec. 31st, 1900.*)	5,855	136 4 3
K. H. Garvie	8, Crossley Street, Halifax	Halifax	1,215	14 14 6
W. H. Seal	41, Piccadilly, Bradford	Bradford	5,546	99 7 6
J. M. Arbuckle	22, Chalmers Road, Ayr	South West Scotland	9,122	116 9 10
*G. A. Taylor	34, Richmond Terrace, Blackburn	(Blackburn*)	5,435	53 8 3
F. J. Parkes	King John's Chambers, Nottingham	Nottingham	4,833	72 13 1
J. E. Harston	39, Victoria Street, London, S.W.	Kent	9,668	148 9 7
J. Dodgson	72, Bridge Street, Manchester	Rochdale	5,880	102 19 7
*T. O. Edwards	18, Albany Road, Cardiff	(South Wales and Monmouthshire.*)	2,780	31 10 5
J. H. Crabtree	72, Bridge Street, Manchester	Oldham	2,880	15 7 7
J. Hilditch	Essenden, Rhoeddu, Wrexham	North Wales	8,095	82 0 2
T. C. Butler	13, Ward Road, Dundee	East Scotland (*West London and Newcastle until Dec. 31st, 1900.*)	6,015	77 8 2
S. Shuter	36, Bedford Street, Plymouth	Plymouth (*Bristol until June 26th, 1900.*)	5,496	97 18 3
A. Newlands	21, King Street, Aberdeen	North Scotland	10,249	283 10 5
*E. F. May	Carlton Chambers, Baldwin Street, Bristol.	(Bristol*) (*North Staffordshire until July 6th, 1900.*)	5,464	164 9 9
*John Law	Prudential Assurance Buildings, Mosley Street, Newcastle-on-Tyne.	Newcastle (*Leeds until Aug. 1st, 1900.*)	4,438	57 16 6
Junior Inspectors.				
A. Platt	72, Bridge Street, Manchester	Manchester	1,441	18 7 4
H. Verney	1, East Parade, Leeds	Leeds	6,236	65 10 9
W. S. Smith	72, Bridge Street, Manchester	Manchester	6,816	140 7 7
S. Braut	51, South John Street, Liverpool	Liverpool	4,263	81 6 3
J. H. Nicholl	12, Dawson Street, Dublin	Dublin (*Wolverhampton until Aug. 7th, 1900.*)	7,887	116 8 1
W. Buchan	121, West Regent Street, Glasgow	West Scotland	5,045	116 13 6
W. F. Ireland	39, Victoria Street, London, S.W.	East London	7,226	106 15 2
E. V. Clark	77, Darlington Street, Wolverhampton	Wolverhampton (*Newcastle until Aug. 18th, 1900.*)	5,422	57 9 3
J. Kellett	51, South John Street, Liverpool	Liverpool (*North Ireland until April 9th, 1900.*)	3,863	65 15 11
A. Wolfe	35, Paradise Street, Birmingham	Birmingham	2,614	36 1 9
W. J. Bremner-Davis	39, Victoria Street, London, S.W.	North London	4,692	57 3 0
H. J. Peacock	41, Piccadilly, Bradford	Bradford	5,238	52 0 9
W. J. Neely	1, East Parade, Leeds	Leeds (*South Ireland until Aug. 15th, 1900.*)	10,824	198 19 4
H. C. D. Fearon	39, Victoria Street, London, S.W.	North London	5,446	87 16 5

* Supernumerary Inspector of the Second Class.

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TABLE 1.—H.M. Inspectors of Factories and Assistants—*continued.*

Name. (1.)	Address. (2.)	District. (3.)	1900. Miles Travelled. (4.)	1900. Travelling and Personal Expenses. (5.)
				£. s. d.
Junior Inspectors—*cont.*				
W. B. Lauder	121, West Regent Street, Glasgow	West Scotland (*Liverpool until Mar. 24th, 1900.*)	3,627	53 16 3
T. Taylor	31, Fargate, Sheffield	Sheffield	2,573	35 5 1
A. F. J. Dunolly	19, Market Street, Huddersfield	Huddersfield	2,115	18 7 0
W. D. Kirkwood	124, Donegall Street, Belfast	North Ireland (*North Scotland until June 26th, 1900.*)	5,443	106 18 11
E. S. Wilson	21, Portland Street, Southampton	Southampton	9,962	128 1 4
L. P. Evans	35, Paradise Street, Birmingham	Birmingham	3,236	41 16 5
T. Brown	121, West Regent Street, Glasgow	West Scotland	3,644	44 5 10
W. H. Beverley	72, Bridge Street, Manchester	Manchester	1,212	9 4 4
J. Owner	39, Victoria Street, London, S.W.	South London	6,426	69 15 11
H. E. Brothers	35, Paradise Street, Birmingham	Birmingham	2,249	28 6 1
D. F. Young	124, Donegall Street, Belfast	Belfast (*West Scotland until March 12th, 1900.*)	8,435	173 7 10
R. Eatock	72, Bridge Street, Manchester	Manchester	2,101	18 16 10
J. H. Warren	21, Fargate, Sheffield	Sheffield	2,128	30 18 5
J. L. Edwards	51, St. Helen's Road, Swansea	South Wales and Monmouthshire.	7,982	146 1 7
C. F. R. Johnston	39, Victoria Street, London, S.W.	West London	5,674	58 10 11
E. F. Boggis Rolfe	1, East Parade, Leeds	Leeds (*North London until March 5th, 1900.*)	5,944	89 6 8
†E. A. R. Werner	15, Glebe Buildings, Stoke-on-Trent	North Staffordshire	3,075	50 11 10
†E. L. Allhusen	39, Victoria Street, London, S.W.	North London	3,384	25 14 0
†H. W. Younger	Do. do.	East London	930	6 9 2
†W. F. E. Seymour	Do. do.	South London	1,946	26 15 0
†L. Ward	Home Office	(Temporarily unattached)	—	—
Inspector under Cotton Cloth Factories Act.				
W. Williams	118, Monton Road, Eccles	Textile Factories using Artificial Humidity.	8,836	144 16 8
PARTICULARS:				
Examiner.				
T. Birtwistle	19, St. James Street, Accrington	Textile Particulars	10,374	200 16 10
Inspector.				
J. T. Birtwistle	34, Richmond Terrace, Blackburn	Textile Particulars	4,926 (*see also above.*)	93 0 3 (*see also above.*)
Assistant Examiners.				
H. Taylor	8, Greenhill, Longwood, Huddersfield	Textile Particulars	6,662	42 9 1
E. J. Holmes	19, St. James Street, Accrington	Textile Particulars	7,555	71 9 2
J. T. Ashton	55, Chelmsford Street, Oldham	Textile Particulars	4,861	44 12 7
Inspectors' Assistants.				
C. E. Whitelaw	21, Portland Street, Southampton	Southampton	15,107	151 1 2
J. J. Pender	124, Donegall Street, Belfast	North Ireland	(Serving with H.M. Forces in South Africa.)	
T. Davis	39, Victoria Street, London, S.W.	South London	6,878	45 0 0
J. Burns	1, Albyn Place, Edinburgh	South East Scotland	7,294	133 17 7
T. C. Hayward	14, Rampant Horse Street, Norwich	Norwich	9,917	154 4 3
S. Fallows	39, Victoria Street, London, S.W.	South London	5,623	98 17 10
J. T. Mackie	Do. do.	West London	7,168	42 10 9
R. A. Goddard	Do. do.	North London	3,440	16 7 9
A. M. Thomas	Do. do.	West London	5,301	31 5 5
A. Ballantyne	121, West Regent Street, Glasgow	West Scotland	12,235	213 13 1

† Appointed in 1900.

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TABLE 1.—H.M. Inspectors of Factories and Assistants—*continued.*

Name. (1.)	Address. (2.)	District. (3.)	1900. Miles Travelled. (4.)	1900. Travelling and Personal Expenses. (5.)
Inspectors' Assistants —*cont.*				£ s. d.
J. Ryan	72, Bridge Street, Manchester	Manchester	1,866	8 5 4
R. G. Broadhead	121, West Regent Street, Glasgow	West Scotland	5,602	54 7 8
F. T. Beaumont	26, Park Square, Leeds	Leeds	5,834	78 14 5
C. H. Morris	21, Fargate, Sheffield	Sheffield	1,427	14 13 9
J. Clark	89, Victoria Street, London, S.W...	East London	6,470	35 7 6
F. W. Sedgwick	51, South John Street, Liverpool	Liverpool	2,402	21 3 7
D. Timothy	51, St. Helens Road, Swansea	South Wales	4,997	67 6 5
J. Dean	34, Richmond Terrace, Blackburn	Blackburn	5,166	39 13 7
R. J. Foot	39, Victoria Street, London, S.W...	South London (*Plymouth until July 1st, 1900.*)	13,740	89 4 6
H. Evans	Do. do.	East London	8,464	82 6 6
J. F. Cotty	Do. do.	North London	2,428	11 0 3
A. G. H. Thatcher	Do. do.	Do.	4,974	90 10 7
R. W. H. Sharland	Carlton Chambers, Baldwin Street, Bristol.	Bristol	6,126	71 9 0
J. H. Parker	12, Dawson Street, Dublin	South Ireland	12,485	143 19 3
T. Porteus	35, Paradise Street, Birmingham	Birmingham (*Manchester until Feb. 14th, 1900.*)	2,351	17 18 0
F. Wells	9, George Row, Northampton	Northampton (*South London until Mar. 31st, 1900.*)	1,816	9 14 2
†F. C. Cook	Victoria Parade, Gallowtree Gate, Leicester.	Leicester (*South London until June 1st, 1900.*)	1,239	12 4 0
†J. Hirst	91a, Fishergate, Preston	Preston (*Derby until June 4th, 1900.*)	2,855	30 12 6
†L. Duffield	King John's Chambers, Nottingham	Nottingham (*Wolverhampton until May 21st, 1900.*)	356	4 5 3
†W. H. Wilson	8, Crossley Street, Halifax	Halifax	400	1 18 1
†G. Dixon	Babington Buildings, Derby	Derby (*East London until June 7th, 1900.*)	1,000	13 17 6
†F. Cowell	36, Bedford Street, Plymouth	Plymouth	440	13 6 10
LADY INSPECTORS:				
Principal Lady Inspector.				
A. M. Anderson	66, Victoria Street, London, S.W...		5,943	92 2 6
Inspectors.				
M. M. Paterson	121, West Regent Street, Glasgow		13,893	223 19 10
L. A. E. Deane	66, Victoria Street, London, S.W...	*	4,640	103 9 6
R. E. Squire	Do. do.		11,640	227 17 7
A. Tracey	Do. do.		5,894	95 19 9
E. Sadler	Do. do.		6,296	95 0 0
†M. M. Vines	Do. do.		2,267	16 11 9
		Grand Total	743,943	10,339 18 3
		Do. 1899	716,431	9,969 14 7
		Do. 1898	676,770	9,440 19 9

* The following works have been assigned to Miss Deane from February 15th, 1900:—
Laundries, and
Milliners' and dressmakers' workshops
in the Metropolitan Boroughs of Hammersmith, Fulham, Chelsea, Kensington, Paddington, St. Marylebone, and Westminster, and in the Urban Districts of Acton and Chiswick.
† Appointed in 1900.

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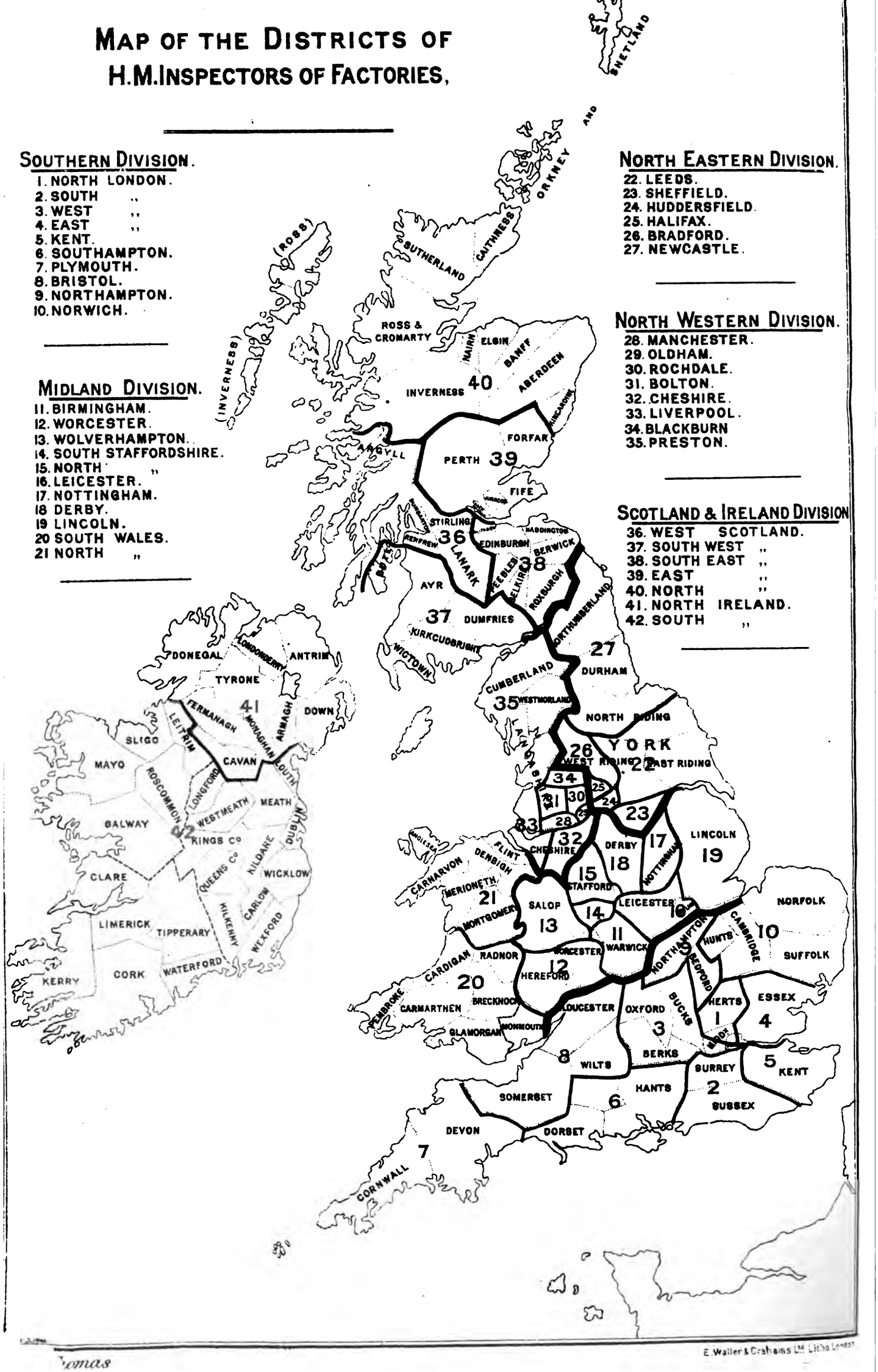
Map of the Districts of H.M. Inspectors of Factories,



Southern Division.

1. North London.
2. South ,,
3. West ,,
4. East ,,
5. Kent.
6. Southampton.
7. Plymouth.
8. Bristol.
9. Northampton.
10. Norwich.

Midland Division.

11. Birmingham.
12. Worcester.
13. Wolverhampton.
14. South Staffordshire.
15. North ,,
16. Leicester.
17. Nottingham.
18 Derby.
19 Lincoln.
20 South Wales.
21 North ,,

North Eastern Division.

22. Leeds.
23. Sheffield.
24. Huddersfield.
25. Halifax.
26. Bradford.
27. Newcastle.

North Western Division.

28. Manchester.
29. Oldham.
30. Rochdale.
31. Bolton.
32. Cheshire.
33. Liverpool.
34. Blackburn
35. Preston.

Scotland & Ireland Division

36. West Scotland.
37. South West ,,
38. South East ,,
39. East ,,
40. North ,,
41. North Ireland.
42. South ,,

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TABLE 2.—Districts and Staff.

Corrected to April 10th, 1901. At this date there were vacancies for 2 Junior Inspectors.

No. of District.	District.	District Inspector.	Other Inspectors.	Inspectors' Assistants.	Registered		Principal Manufacturing Towns or Districts.	Principal Industries.
					Factories (including Laundries).	Workshops (including Laundries).		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	SOUTHERN DIVISION.							
1	**North London.**—Part of the County of London, viz., the City of London, and the Metropolitan Boroughs of Hampstead, St. Pancras, Islington, Stoke Newington, Shoreditch, Finsbury and Holborn. Hertfordshire. Part of Middlesex, viz., the Unions of Hendon, Barnet, and Willesden, and the Middlesex portion of the Edmonton Union.	A. P. Vaughan.	W. J. Bremner-Davis. H. C. D. Fearon. E. L. Allhusen.	R. A. Goddard. J. F. Cotty. A. G. H. Thatcher.	4,606	7,918	London (North), Edmonton, Tottenham, Ponders End, Enfield, Hertford, St. Albans, Watford.	Letterpress printing, lithographic printing, bookbinding, fancy boxes, tailoring, mantlemaking, dressmaking, bootmaking, cabinet and furniture making, sawmills, aërated water making, electro plate making, generation of electricity.
2	**South London.**—The County of London south of the Thames. Surrey. Sussex.	A. G. K. Woodgate.	J. Owner .. W. Seymour.	T. Davis .. S. Fallows. R. Foot.	4,274	8,520	London (South), Croydon, Brighton, Hastings, Red Hill, Guildford, Kingston-on-Thames.	Letterpress printing and bookbinding, sawmills and wood turning, engineering, laundries, docks, wharves and quays, confectionery, flour, biscuits, bricks and pottery, mineral water, paints and colours, breweries.
3	**West London.**—Part of the County of London, viz., the Metropolitan Boroughs of Hammersmith, Fulham, Chelsea, Kensington, Paddington, St. Marylebone, and Westminster. Berkshire. Buckinghamshire. Oxfordshire. Part of Middlesex, viz., the Unions of Staines, Uxbridge, and Brentford, and the Middlesex portion of Kingston Union. (Milliners and dressmakers' workshops and laundries in the Metropolitan part of this District and in the Urban Districts of Acton and Chiswick are under the charge of Miss Deane.)	G. I. L. Blenkinsopp.	C. F. R. Johnston. (One vacancy.)	J. T. Mackie A. M. Thomas.	2,449	4,248	London (West), Reading, Oxford, High Wycombe, Banbury, Windsor, Newbury, Aylesbury, Chesham, Southall and West Drayton, Uxbridge, Wokingham.	Letterpress and lithographic printing, stationery and bookbinding, machines, engines and engineering, sawmills, chairs &c. furniture, cabinets pianos, dressmaking, tailoring, millinery, breweries and aërated waters, laundries, biscuits, bread &c., flour, paper, bricks, stonemasons, wharves, buildings in course of construction.
4	**East London.**—Part of the County of London, viz., the Metropolitan Boroughs of Hackney, Bethnal Green, Stepney and Poplar, and so much of the Metropolitan Borough of Woolwich as is north of the Thames. Essex.	C. C. W. Hoare.	W. F. Ireland. H. W. Younger. (Temporarily.)	J. Clark .. H. Evans.	3,202	7,033	London (East), Colchester, Chelmsford, Walthamstow, Southend, Braintree, Barking, Ilford, Romford, Grays, Tilbury and Stanford, Saffron Walden, Dunmow, Maldon, Halstead and Colne, Manningtree.	Engineering (marine, locomotive, electrical and general), shipbuilding, clothing, docks, wharves, quays and warehouses, lucifer matches, india-rubber, white-lead, paints, colours and varnishes, confectionery and chocolate, wood working, packing cases, tobacco.
5	**Kent.**—The County of Kent.	J. E. Harston.	.. .. ..	.. .. ..	1,303	1,924	Chatham (including Rochester and Strood), Erith (including Belvedere), Dartford, Northfleet (including Swanscombe and Greenhithe), Maidstone, Sittingbourne, Faversham, Sheerness, Ashford, Tunbridge Wells, Dover, Canterbury.	Machines, appliances, conveyances, tools, clay, stone &c., paper, printing, stationery &c., wood, drink, food, laundries, docks, wharves &c., clothing, explosives.

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TABLE 2.—Districts and Staff—*continued.*

No. of District.	District.	District Inspector.	Other Inspectors.	Inspectors' Assistants.	Registered		Principal Manufacturing Towns or Districts.	Principal Industries.
					Factories (including Laundries).	Workshops (including Laundries).		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	SOUTHERN DIVISION—*cont.*							
6	**Southampton.**—Part of Wiltshire, viz., Wiltshire south of the northern boundary of the Warminster and Amesbury Unions. Dorsetshire. Hampshire.	J. F. Bevan	E. S. Wilson	C. E. Whitelaw.	1,898	5,827	Portsmouth, Southampton, Bournemouth, Salisbury, Poole, Basingstoke, Winchester, Bridport, Dorchester, Aldershot, Weymouth, Cowes, Newport.	Flax, ropes, nets, corsets, clothing, engineering, brick making, breweries, railway carriages, ship building, stone mills, quarries.
7	**Plymouth.** — Cornwall and Devonshire.	S. Shuter ..	.. .. ..	F. Cowell ..	1,810	4,013	Plymouth, Exeter, Torquay, Newton Abbot, Barnstaple, Redruth, Penzance, Falmouth, Bideford, Paignton, Tiverton, Camborne.	Shipbuilding, paper, sawmills, flour, machinists, clothiers, confectionery, cuffs, collars, wool, marble and granite, lace, potteries.
8	**Bristol.**—Part of Wiltshire, viz., Wiltshire north of the southern boundary of the Pewsey, Devizes, and Westbury-and-Whorwellsdown Unions. Somersetshire. Gloucestershire.	J. S. Maitland	*C. R. Pendock. *E. F. May	R. W. H. Sharland.	3,238	5,341	Bristol, Bath, Gloucester, Cheltenham, Swindon, Taunton, Stroud, Yeovil, Bridgwater, Chippenham, Weston-super-Mare, Glastonbury.	Wool spinning and weaving, engineering, clothing, boots and shoes, tobacco, letterpress printing, lithography, chocolate and cocoa, corsets, confectionery, bacon curing, bricks, paper, silk.
9	**Northampton.**—Northamptonshire and Bedfordshire.	C. F. Wright	.. .. ..	F. Wells ..	1,408	3,489	Northampton, Kettering, Luton and Dunstable, Rushden and Higham Ferrers, Wellingborough, Raunds, Finedon, Bedford, Peterborough and Fletton.	Boots and shoes, straw hats and bonnets, machinery, tanners, curriers, sawmills, tailoring, millinery, mantle, corset and dress making, flour, agricultural implements, bricks and tiles.
10	**Norwich.**—Norfolk, Suffolk, Huntingdonshire, and Cambridgeshire.	O. A. Shinner	.. .. ..	T. C. Hayward.	2,161	4,038	Norwich, Ipswich, Cambridge, Huntingdon, Yarmouth, Lowestoft, Kings Lynn, Wisbech, Sudbury, Thetford, Bury St. Edmunds, Stowmarket.	Boots and shoes, tailoring, mustard and starch, machines, engines and engineering, bricks, artificial manure, brewing and malting, flour, fish curing, silk weaving, millinery, mantle, corset and dress making, laundries.
	Total for Southern Division (excluding works assigned to Miss Deane).				26,349	53,051		
	MIDLAND DIVISION.							
11	**Birmingham.**—Parts of Worcestershire and Staffordshire, viz., the Unions of Kings Norton and Solihull. Warwickshire.	S. H. Knyvett	A. Wolfe .. L. P. Evans. H. E. Brothers. (One vacancy.)	T. Portous .	4,216	3,923	Birmingham, Aston, Smethwick, Coventry and Foleshill, Nuneaton, Atherstone, Stratford-on-Avon, Worcestershire suburbs of Birmingham, Leamington and Warwick, Rugby, Bedworth.	Galvanizing and finishing metals, founding and converting metals, appliances and tools, machines, jewellery and watches, cycles and accessories, arms and ammunition, drink, railway and other carriages, pens, pins and needles, clothing, electroplate and silver, glass, fancy articles, furniture.

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TABLE 2.—Districts and Staff—*continued.*

Number of District.	District.	District Inspector.	Other Inspectors.	Inspectors' Assistants.	Registered		Principal Manufacturing Towns or Districts.	Principal Industries.
					Factories (including Laundries).	Workshops (including Laundries).		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	MIDLAND DIVISION—*cont.*							
12	**Worcester.**—Worcestershire, except the Unions of Stourbridge, Dudley, West Bromwich, Kings Norton, and Solihull. Herefordshire.	R. P. Arnold	.. .. ..	.. .. ..	800	966	Worcester, Kidderminster, Redditch, Hereford, Bromsgrove, Droitwich and Stoke Prior, Stourport, Leominster, Ross, Evesham, Ledbury, Bromyard.	Gloves, pins, needles and fish-hooks, carpets, salt, machinery, china and earthenware, sawmills, carpenters, boots, bricks and tiles, tin-plate working and japanning, tinning and enamelling, flour, letterpress and lithographic printing and bookbinding, aërated waters, brewing, malting and cider, tailoring.
13	**Wolverhampton.**—Parts of Worcestershire and Staffordshire, viz., the Unions of Wolverhampton, Dudley, Stourbridge, Seisdon, and the Civil Parish of Patshull. Shropshire.	J. E. Ashworth.	E. V. Clark	.. .. ..	2,045	4,283	Wolverhampton, Dudley, Tipton, Bilston, Cradley Heath and Old Hill, Stourbridge and Wordsley, Willenhall, Shrewsbury, Oswestry, Market Drayton, Ironbridge and Jackfields, Bridgnorth.	Iron mills, japanned goods, chains and anchors, cycles and tubes, hollowware, brass casting, locks and keys, iron founding, engineering, sawmills, enamelled plates, printing, worsted spinning, glass, carpets, edge tools, bricks and drain pipes, clothing.
14	**South Staffordshire.**—Parts of Staffordshire and Worcestershire, viz., the Unions of West Bromwich, Walsall, Lichfield, and Cannock. The Staffordshire portion of the Union of Tamworth and of the Union of Shifnal, except the Civil Parish of Patshull.	J. Jackson..	.. .. ..	.. .. ..	1,051	1,228	Walsall, West Bromwich, Wednesbury, Oldbury, Darlaston, Tamworth, Cannock and Hednesford, Handsworth.	Saddlery, harness and harness furniture, iron founding, brass founding, engineering, iron mills, boiler, bridge &c. making, tube making, nuts and bolts, curriers, chemicals, brewing and malting, wearing apparel, wholesale tailoring, bricks, percussion caps and cartridges, smallware weaving.
15	**North Staffordshire.**—The part of Staffordshire north of the southern boundaries of the Newport, Stafford, Uttoxeter, and Burton-upon-Trent Unions. Part of Derbyshire, viz., the part of the Burton-upon-Trent Union which is south of the Trent.	J. H. Walmsley.	E. A. R. Werner.	.. .. ..	1,589	2,300	Hanley, Burton-on-Trent, Longton, Burslem, Stoke-on-Trent, Stafford, Newcastle-under-Lyme, Fenton, Leek, Tunstall, Stone, Kidsgrove.	Earthenware and china, iron and steel, silk throwing and weaving, boots and shoes, brewing, bricks and tiles, engineering, iron smelting, litho transfer making, copper wire and tube making, salt, fustian cutting.
16	**Leicester.**—Leicestershire and Rutlandshire.	G. Sedgwick	.. .. ..	F. C. Cook	1,472	1,236	Leicester, Loughborough, Hinckley, Melton Mowbray, Ashby, Market Harborough, Coalville, Great Wigston, Uppingham, Oakham.	Boots and shoes, hosiery, dyeing and finishing, wool spinning, elastic and braid, engineering, underclothing, cigars, iron foundries, corsets, bricks and tiles, laundries, warehouses (shoe).
17	**Nottingham.**—Nottinghamshire.	F. J. Parkes	.. .. ..	L. Duffield	1,656	1,435	Nottingham, Retford and District, Newark, Mansfield, Worksop, Sutton-in-Ashfield, Eastwood and Langley Mill District, Beeston, Hucknall Torkard, Caulton and District, Stapleford, Misterton.	Lace, hosiery, machines, engines and engineering, lace dressing and bleaching, iron founding, aprons, blouses, pinafores, millinery, mantles, corsets and dressmaking, tobacco, cigars, &c., sawmills, carpenters, letterpress and lithographic printing, cabinet and furniture making, bricks and tiles.
18	**Derby.**—Derbyshire, except the part of the Burton-on-Trent Union which is south of the Trent.	J. H. Rogers	.. .. ..	G. Dixon ..	1,346	991	Derby, Glossop, Chesterfield, Ilkeston, Erewash Valley, Dronfield and District, Alfreton and District, Belper and District, New Mills and District.	Engineering, carriages and waggons, extraction of iron, conversion of iron, cotton, lace, bleaching and dyeing, calico printing, white-lead, earthenware.

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TABLE 2.—Districts and Staff—*continued.*

Number of District.	District.	District Inspector.	Other Inspectors.	Inspectors' Assistants.	Registered		Principal Manufacturing Towns or Districts.	Principal Industries.
					Factories (including Laundries).	Workshops (including Laundries).		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	MIDLAND DIVISION—*cont.*							
19	**Lincoln.**—Lincolnshire..	J. Pearson..	.. .. ..	.. .. ..	1,244	1,627	Grimsby, Lincoln, Grantham, Boston, Gainsborough, Louth, Spalding, Stamford, Barton-on-Humber, Horncastle, Sleaford, Scunthorpe, Bourne, Crowle.	Agricultural implements, engineering, flour, sawmills, bricks, iron and steel mills, shipbuilding, fish curing, letterpress printing, leather, aërated waters, cigars, docks.
20	**South Wales and Monmouthshire.**—The Counties of Monmouth, Glamorgan, Carmarthen, Pembroke, Cardigan, Radnor, and Brecon.	A. Lewis ..	*T. O. Edwards. J. L. Edwards.	D. Timothy	2,718	4,278	Swansea and Landore, Cardiff, Newport, Mon., Merthyr and Dowlais, Morriston and Llansamlet, Swansea Valley, Eastern Valley of Monmouthshire, Western Valley of Monmouthshire, Llanelly, Neath and Briton Ferry, Port Talbot and Aberavon, Pontardulais, Pembroke Dock, Gowerton and Gorseinon, Barry and Barry Dock, Aberdare, Rhondda Valley.	Conversion of iron into steel (including tin-plates), smelting of iron, founding of iron, machines, engines and engineering, docks, wharves and quays, sawmills, smelting of copper and yellow metal, ship and boat building and repairing, bricks and tiles, corn, flour and grist mills, millinery, mantle and dressmaking, letterpress printing, printing of newspapers, mixing and casting of brass, carding and spinning wool, brewing and malting, aërated water, tailoring, smelting of zinc, lead, bullion ores, lithographic printing.
21	**North Wales.**—The Counties of Montgomery, Merioneth, Carnarvon, Anglesey, Denbigh, and Flint.	J. Hilditch	.. .. ..	.. .. .	1,155	1,501	Wrexham and District, Ruabon and District, Flint and District, Mold and District, Carnarvon and District, Newtown and District, Holywell and District, Hawarden District, Bangor, Holyhead, Amlwch, Llandidloes, Portmadoc.	Terra cotta and brick making, iron and steel galvanizing and tin-plate works, engineering, chemicals, wool, leather, clothing and hosiery, enamelled slate goods and school slates, paper, chains and anchors, artificial manure, letterpress printing aërated waters, brewing.
	Total for Midland Division				19,392	23,768		
	NORTH EASTERN DIVISION.							
22	**Leeds.**—Part of the West Riding of Yorkshire, viz., the Unions of Pateley Bridge, Knaresborough, Great Ouseburn, Wetherby, Leeds, Bramley, Holbeck, Hunslet, Tadcaster, Pontefract, and Wakefield: the West Riding portion of the Unions of Ripon, York, Selby, and Goole: and the borough of Morley. Part of the North Riding of Yorkshire, viz., the Unions of Thirsk, Helmsley, Kirby Moorside, Pickering, Whitby, and Easingwold, and the North Riding portion of the Ripon, York, Malton, and Scarborough Unions. The East Riding of Yorkshire.	J. A. Hine..	H. Verney W. J. Neely. E. F. Boggis Rolfe.	F. T. Beaumont	3,492	3,945	Leeds, Hull, York, Wakefield, Morley, Pontefract, Castleford, Selby, Knottingley, Goole, Scarborough, Ripon, Whitby.	Engineering, machine making, ship building, iron and steel making, dressmaking, millinery, wholesale clothing, boots and slippers, docks and wharves, warehouses, corn mills, wool, bricks, joinery and carpentering, sawmills, printing, laundries, cabinet making, paints and colours, oil and seed crushing, fish curing, glass bottles, confectionery, chemicals, soap, earthenware, worsted, liquorice refining, matches, jet ornaments, hemp and tow spinning, linen weaving.

* Supernumerary Inspector of the Second Class.

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TABLE 2.—Districts and Staff—*continued.*

No. of District.	District.	District Inspector.	Other Inspectors.	Inspectors' Assistants.	Registered Factories (including Laundries).	Registered Workshops (including Laundries).	Principal Manufacturing Towns or Districts.	Principal Industries.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	NORTH EASTERN DIVISION—*cont.*							
23	**Sheffield.**—Part of the West Riding of Yorkshire, viz., the Unions of Wortley, Penistone, Barnsley, Hemsworth, Rotherham, Sheffield, and Eccleshall-Bierlow, and the Yorkshire portions of the Unions of Thorne, Doncaster, and Worksop.	H. P. Smith	Thos. Taylor J. H. Warren.	C. H. Morris	3,395	2,691	Sheffield, Barnsley, Rotherham, Doncaster, Swinton, Mexborough, Penistone, Thorne, Conisborough, Wombwell, Wath-on-Dearne, Stocksbridge.	Manufacture of iron and steel, armour plates and ordnance, railway rails, locomotives, carriages and waggons, steel castings and forgings, engineering, boilers, cutlery, edge tools, files and saws, silver and electroplate, brass founding, iron founding, linen weaving paper, earthenware glass bottles.
24	**Huddersfield.**—Part of the West Riding of Yorkshire, viz., the Unions of Saddleworth, Huddersfield, and Dewsbury (except the borough of Morley.)	J. D. Prior	A. F. J. Dunolly	.. .. ..	1,857	1,946	Huddersfield, Dewsbury, Batley, Mirfield, Saddleworth, Soothill, Ossett, Heckmondwike, Liversedge, Thornhill, Holmfirth, Birstall, Ravensthorpe, Honley, Linthwaite, Golcar.	Wool, worsted, cotton, shoddy, machines and engineering, dyeing and bleaching, founding and finishing of brass and iron, paints, colours, dyes and chemicals, tailoring, dressmaking, millinery and boot making, letterpress printing and lithography, brewing, aërated waters, sawmills, coopers, brushes, confectioners, fustian cutting.
25	**Halifax.**—Part of the West Riding of Yorkshire, viz., the Unions of Halifax and Todmorden.	K. H. Garvie	.. .. ..	W. H. Wilson	1,606	1,231	Halifax, Todmorden, Brighouse, Hebden Bridge, Sowerby Bridge, Elland, Greetland, Stainland, Luddendenfoot, Lightcliff, Shelf, Mytholmroyd.	Wool and worsted, cotton, machine tools, silk, carpets, iron founding, mixing and casting brass, fustian cutting, dyeing, clothing.
26	**Bradford.**—Part of the West Riding of Yorkshire, viz., the Unions of Bradford, North Bierley, Keighley, Skipton, Settle, Sedbergh, and Wharfedale, and the Yorkshire portion of the Union of Clitheroe.	W. H. Seal	H. J. Peacock	.. .. ..	2,399	1,970	Bradford and District, Keighley, Cleckheaton, Shipley, Bingley, Skipton, Pudsey, Barnoldswick, Silsden, Otley, Sedbergh.	Worsted, wool, cotton, machines, print, bleach and dyeworks, silk, shoddy, sawmills, carpenters, galvanizing metals, brass finishing, paper, printing and stationery, furniture, drink.
27	**Newcastle.**—Part of the North Riding of Yorkshire, viz., the Unions of Teesdale, Reeth, Aysgarth, Richmond, Darlington, Middlesbrough, Guisboro', Stokesley, Northallerton, Leyburn and Bedale; Northumberland, Durham; the County of the borough and town of Berwick.	H. J. Wilson	*John Law	.. .. ..	2,679	2,920	Newcastle-on-Tyne, Sunderland, Gateshead, Middlesbrough, South Shields, Hartlepool, Stockton, North Shields, Darlington, Bishop Auckland, Durham, Blyth, Blackhill and Consett.	Engineering &c., ship building, rolling iron and steel, smelting iron, sawmills and carpenters, white, red and yellow lead, glass, paper, cement, docks, wharves and quays, chemicals, ropes.
	Total for North-Eastern Division				17,428	14,903		
	NORTH WESTERN DIVISION.							
28	**Manchester.**—Part of Lancashire, viz., the Unions of Manchester Township, Salford, Chorlton, Prestwich, Barton-upon-Irwell, and the Lancashire portion of the Union of Warrington.	E. M. Roe..	A. Platt .. W. S. Smith. W. H. Beverley. R. Estock.	J. Ryan ..	3,572	5,429	Manchester, Salford, Warrington, Eccles and Patricroft, Failsworth, Stretford, Swinton and Pendlebury, Walkden, Gorton, Newton-le-Willows and Earlestown, Irlam and Cadishead, Prestwich, Urmston and Flixton.	Cotton, engineering, iron and steel wire, clothing, print, bleach and dye works, chemicals, paper, silk, wool and worsted, letterpress printing and lithography, cabinet making, fustian cutting.

* Supernumerary Inspector of the Second Class.

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TABLE 2.—Districts and Staff—*continued.*

No. of District.	District.	District Inspector.	Other Inspectors.	Inspectors' Assistants.	Registered		Principal Manufacturing Towns or Districts.	Principal Industries.
					Factories (including Laundries).	Workshops (including Laundries).		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	NORTH WESTERN DIVISION—*cont.*							
29	**Oldham.**—Part of Lancashire, viz., the Union of Oldham; the Lancashire portion of the Union of Ashton-under-Lyne; and the Lancashire portion (excluding the borough of Stockport) of the Union of Stockport.	J. H. Crabtree.	.. .. ..	.. .. ..	1,206	920	Oldham, Ashton, Mossley, Droylesden, Middleton, Chadderton, Royton, Shaw, Lees, Heaton Mersey.	Cotton, machines, engineering, sawmills, iron founding, mill banding, bleach works, dyeworks, calico printing, letterpress printing, aërated water.
30	**Rochdale.**—Part of Lancashire, viz. the Unions of Bury, Rochdale, and Haslingden.	J. Dodgson	.. .. ..	.. .. ..	1,835	1,572	Rochdale, Bury, Accrington, Heywood, Radcliffe, Haslingden, Bacup, Rawtenstall, Rossendale Valley, Castleton, Ramsbottom, Littleborough.	Cotton, machines, engineering, wool, printing, bleaching and dyeing, slippers, paper and paper staining, felt cloths and hats, silk, carpets, chemicals, leather, bricks, stone.
31	**Bolton.**—Part of Lancashire, viz., the Unions of Bolton, Chorley, Leigh, and Wigan.	R. Tinker..	.. .. ..	.. .. ..	1,375	1,495	Bolton, Wigan, Chorley, Leigh, Farnworth, Horwich, Atherton, Tyldesley, Golborne, Turton.	Cotton spinning, cotton manufacturing, iron, bleaching.
32	**Cheshire.**—Parts of Cheshire and Lancashire, viz., the Unions of Nantwich, Northwich Congleton, Macclesfield, Bucklow, Stockport, (except the Urban Districts of Reddish and Heaton Norris), and the Cheshire portion of the Unions of Hayfield, and Ashton-under-Lyne.	D. Walmsley.	.. .. ..	.. .. ..	1,536	1,463	Stockport, Macclesfield, Hyde, Stalybridge, Dukinfield, Crewe, Northwich, Congleton, Nantwich, Winsford, Sandbach.	Cotton, silk, engineering, felt hats, calico printing, clothing, boilers, chemicals, salt, boots, railway engines, fustian cutting.
33	**Liverpool.**—Part of Lancashire, viz., the Unions of West Derby, Liverpool Parish, Toxteth Park Township, Prescot, and Ormskirk, part of Cheshire, viz., the Unions of Birkenhead, Wirrall, Chester, Tarvin, and Runcorn; and the Cheshire portion of the Whitchurch Union.	R. E. Graves	S. Eraut .. J. Kellett.	F. W. Sedgwick.	2,533	4,165	Liverpool, St. Helens, Birkenhead, Widnes, Runcorn, Chester, Southport, Prescot.	Glass, ropes, chemicals, whitelead, engineering, shipbuilding, seed crushing, rice and flour, docks &c., watch movements.
34	**Blackburn.**—Part of Lancashire, viz., the Unions of Blackburn and Burnley, and the Lancashire portion of the Union of Clitheroe.	J. T. Birtwistle.	*G. A. Taylor. (Temporarily).	J. Dean ..	1,698	1,991	Blackburn, Burnley, Darwen, Nelson, Colne, Padiham, Great Harwood, Clitheroe, Church, Oswaldtwistle, Barrowford, Trawden, Clayton-le-Moors, Rishton, Brierfield.	Cotton spinning, cotton manufacturing, cotton machinery, iron founding, paper making, calico printing, brewing, paper staining, engineering.
35	**Preston.**—Part of Lancashire, viz., the Unions of Preston, Fylde, Garstang, Lancaster, Lunesdale, Ulverston, and Barrow-in-Furness. Cumberland. Westmorland.	Joseph Law	.. .. ..	J. Hirst ..	1,927	1,872	Preston, Lancaster, Barrow-in-Furness, Workington, Carlisle, Kendal, Ulverston, Blackpool, Fleetwood.	Cotton weaving, cotton spinning, engineering, iron smelting, iron rolling mills, joiners and saw mills, iron founding, shipbuilding, oilcloth, paper, biscuits, wool weaving.
	Total for North Western Division				15,682	18,907		
	SCOTLAND AND IRELAND DIVISION.							
36	**West Scotland.**—The Counties of Lanark, Renfrew, Argyle, Dumbarton, and Stirling.	H. M. Robinson.	W. Buchan W. B. Lauder. T. Brown.	A. Ballantyne R. G. Broadhead.	4,282	6,625	Glasgow (including Govan and Partick), Paisley, Greenock, Coatbridge, Falkirk District, Motherwell District.	Shipbuilding and engineering, founding and conversion of metal, cotton, print works, bleach and dye works chemicals, paper printing and stationery.

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TABLE 2.—Districts and Staff—*continued.*

Number of District.	District.	District Inspector.	Other Inspectors.	Inspectors' Assistants.	Registered		Principal Manufacturing Towns or Districts.	Principal Industries.
					Factories (including Laundries).	Workshops (including Laundries).		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	SCOTLAND AND IRELAND DIVISION—*cont.*							
37	**South West Scotland.**—The Counties of Ayr, Dumfries, Kircudbright, Wigtown, and Bute.	J. M. Arbuckle.	.. .. ..	.. .. ..	1,106	1,882	Kilmarnock, Ayr, Dumfries, Ardrossan, Saltcoats and Stevenston, Newmilns, Galston and Darvel, Buteshire, Irvine and Dreghorn, Castle Douglas, Stranraer, Thornhill, Kilwinning, Cumnock and Lugar, Langholm.	Wearing apparel, joinery, sawmills and coaches, butter, cheese and bread, grain and seed cleaning, engineering, letterpress printing and bookbinding, cabinets, carpets and wool spinning and weaving, earthenware and bricks, iron and brass founding, hosiery, aërated water, leather, chemicals, laundries.
38	**South East Scotland.**—The Counties of Edinburgh, Linlithgow, Haddington, Peebles, Selkirk and Roxburgh. The County of Berwick (excluding the County of the Borough and Town of Berwick).	H. W. S. Kidersley.	.. .. ..	J. Burns ..	1,390	2,337	Edinburgh, Hawick, Galashiels, Selkirk, Leith, Midlothian, Linlithgowshire, Berwickshire, Peeblesshire, Haddingtonshire.	Letterpress printing, bookbinding, lithographic printing, wool, paper, engineering, foundries, paraffin oil, brewing, distilling, ships, ropes, sails &c., wearing apparel, fish curing, oilcake and chemical manure.
39	**East Scotland.**—The Counties of Perth, Forfar, Fife, Kinross, and Clackmannan.	T. C. Butler	.. .. ..	.. .. ..	1,754	2,279	Dundee, Arbroath, Kirkcaldy, Dunfermline, Perth, Alloa, Montrose, Forfar, Tillicoultry, Alva, Blairgowrie, Brechin, Leven, Markinch, Leslie, Kirriemuir, Kinross, Cupar, Anstruther, Dysart, Tayport.	Jute spinning and weaving, flax spinning and weaving, yarn and cloth bleaching and dyeing, wool spinning and weaving, paper, jute cloth calendering and finishing, iron founding and engineering, wood working, brewing, shipbuilding, confectionery, fruit preserving, bread and biscuit baking, rope and twine, distilleries.
40	**North Scotland.**—The Counties of Aberdeen, Kincardine, Banff, Elgin, Nairn, Inverness, Ross and Cromarty, Sutherland, Caithness, and Orkney and Shetland.	A. Newlands	.. .. ..	.. .. ..	2,073	4,758	Aberdeen, Inverness, Elgin, Forres, Peterhead, Fraserburgh, Wick.	Preserving of provisions and curing of fish, paper, granite cutting and polishing, flax and jute spinning and weaving, whisky distilleries, engineering and shipbuilding comb making, wool and worsted spinning and weaving and hosiery, sawmills and carpenters.
41	**North Ireland.**—The Province of Ulster.	G. B. Snape	W. D. Kirkwood D. F. Young	J. J. Pender	3,321	2,918	Belfast, Londonderry, Portadown, Ballymena, Armagh, Lurgan, Newry, Larne, Cookstown, Lisburn, Coleraine, Strabane.	Flax spinning, linen weaving, shipbuilding, handkerchiefs, shirts, calendering and finishing, scutch mills, aprons, blouses &c., letterpress printing, machines, engines &c., aërated waters, newspaper printing, rope making, sawmills, millinery, mantle and dress making, boots and shoes, tailoring.
42	**South Ireland.**—The Provinces of Munster, Leinster, and Connaught.	G. Bellhouse	J. H. Nicholl	J. H. Parker	2,697	3,407	Dublin, Cork, Limerick, Waterford, Counties of Cork, Limerick, Tipperary, and Kerry.	Breweries, distilleries, butter, army clothing, wool, jute, condensed milk, flour mills.
	Total for Scotland and Ireland Division				16,623	24,206		

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TABLE 2.—Districts and Staff—*continued.*

Number of District.	District.	District Inspector.	Other Inspectors.	Inspectors' Assistants.	Registered		Principal Manufacturing Towns or Districts.	Principal Industries.
					Factories (including Laundries).	Workshops (including Laundries).		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
—	**London** (portion of).—Laundries and milliners' and dressmakers' workshops in the Metropolitan Boroughs of Hammersmith, Fulham, Chelsea, Kensington, Paddington, St. Marylebone and Westminster, and in the Urban Districts of Acton and Chiswick.	(Miss) L. A. E. Deane.	.. .. ..	.. .. ..	190	2,813	West London, Acton, Chiswick.	Dressmaking and millinery, laundries.
	Grand Total				95,664	137,648		
—	**Textile Factories using Artificial Humidity.**	W. Williams	.. .. ..	.. .. ..	.. ..	.. ..	United Kingdom (For the purposes of the Cotton Cloth Factories Acts and Flax Special Rules), viz.: **320** Humidifying Cotton Cloth Factories, under Acts of 1889 and 1897.* **394** Other Humidifying Textile Factories, under s. 31 (1895).* **262** Humidifying Factories. **53** Dry Spinning Factories. } Under Flax & Linen Special Rules.	Textile Factories and Workshops.
—	**Textile Particulars**..	T. Birtwistle (Examiner). H. Taylor, E. J. Holmes, J. T. Ashton (Assistant Examiners).	.. .. ..	.. .. ..	.. ..	.. ..	United Kingdom (For the purposes of the Particulars Section.) **6,227** Textile Factories **1,083** Textile Workshops. } In which workers are paid by the piece.	Textile Factories and Workshops.

* Each room is separately counted (s. 4, 1889).

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TABLE 3.—Laundries, Docks, &c., Warehouses; Non-Textile Particulars: 1900.

District.	Laundries.		Docks, Wharves and Quays.	Warehouses (1895 Act).	Non-Textile Factories and Workshops to which the Particulars Section applies.					
	Factory.	Workshop.			Handkerchiefs, Aprons, Pinafores, Blouses.	Chains, Cables, Anchors.	Locks, Latches, Keys.	Felt Hats.	Wholesale Tailoring.	Pen-making.
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)	(11)
1. North London	313	954	38	464	102	—	1	—	46	—
2. South London	250	1,026	103	34	—	—	—	—	—	—
3. West London	35	156	5	6	—	—	—	—	—	—
3a. Works assigned to Miss Deane	187	525	—	—	—	—	—	—	—	—
4. East London	78	255	264	14	—	—	—	—	250	—
5. Kent	66	228	51	2	—	—	—	—	9	—
6. Southampton	53	215	8	6	—	—	—	—	4	—
7. Plymouth	28	168	30	1	—	—	—	2	3	—
8. Bristol	35	121	112	95	—	—	—	1	16	—
9. Northampton	8	9	—	3	—	—	—	2	—	—
10. Norwich	16	104	9	5	—	—	—	—	9	—
SOUTHERN DIVISION	1,069	3,761	618	630	102	—	1	5	1,067	—
11. Birmingham	31	95	9	17	4	2	7	12	5	13
12. Worcester	9	18	—	2	—	—	—	—	2	—
13. Wolverhampton	7	15	2	16	—	370	300	—	10	—
14. South Staffordshire	4	13	—	20	1	28	13	—	7	—
15. North Staffordshire	11	2	—	10	—	2	—	—	1	—
16. Leicester	11	11	—	5	—	—	—	2	5	—
17. Nottingham	21	22	—	8	37	—	—	—	5	—
18. Derby	21	19	2	9	—	—	—	—	2	—
19. Lincoln	12	7	11	5	—	—	—	—	—	—
20. South Wales and Monmouthshire.	25	25	138	53	—	1	—	—	1	—
21. North Wales	15	11	65	95	—	1	—	—	1	—
MIDLAND DIVISION	167	238	227	240	42	404	320	14	39	13
22. Leeds	62	74	78	122	16	—	—	—	183	—
23. Sheffield	12	7	3	13	—	—	—	—	6	—
24. Huddersfield	16	6	1	44	1	—	—	—	9	—
25. Halifax	14	3	1	29	5	—	—	—	43	—
26. Bradford	34	3	—	73	—	—	—	—	5	—
27. Newcastle	36	18	233	16	—	4	—	—	1	—
NORTH-EASTERN DIVISION.	174	111	316	297	22	4	—	—	252	—
28. Manchester	61	119	121	633	143	6	—	5	150	—
29. Oldham	9	13	—	7	—	—	—	42	—	—
30. Rochdale	8	8	5	16	—	—	—	5	—	—
31. Bolton	4	6	—	18	—	—	—	—	6	—
32. Cheshire	8	9	56	48	1	—	—	32	17	—
33. Liverpool	47	245	424	1,330	—	4	2	—	10	—
34. Blackburn	21	4	9	26	—	—	—	—	2	—
35. Preston	30	7	21	10	—	—	—	1	1	—
NORTH-WESTERN DIVISION.	188	411	636	2,088	144	10	2	85	186	—
36. West Scotland	71	301	76	468	12	2	2	—	18	—
37. South-West Scotland	11	26	17	5	—	—	—	—	—	—
38. South-East Scotland	39	48	8	14	—	—	—	—	1	—
39. East Scotland	20	12	32	29	—	—	—	—	3	—
40. North Scotland	12	15	96	55	—	—	—	—	1	—
41. North Ireland	26	11	19	32	175	—	—	2	2	—
42. South Ireland	27	38	52	49	2	—	—	6	7	—
SCOTLAND AND IRELAND DIVISION.	206	451	300	652	189	2	2	8	32	—
UNITED KINGDOM	1,804	4,972	2,097	3,907	499	420	325	112	1,546	12

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TABLE 4.—Certifying Surgeons.—Examination of Children and Young Persons for Employment in Factories, 1895-1900.

Ages. (1.)		Examined. Males. (2.)	Examined. Females. (3.)	Examined. Total. (4.)	Passed. Males. (5.)	Passed. Females. (6.)	Passed. Total. (7.)	Rejected. Males. (8.)	Rejected. Females. (9.)	Rejected. Total. (10.)
Children under 14 ..	1900	20,311	19,327	39,638	20,143	19,106	39,249	168	221	389
	1899	24,892	26,376	51,268	24,620	26,069	50,689	272	307	579
	1898	43,821	38,287	82,108	42,967	37,739	80,706	854	558	1,392
	1897	46,171	39,320	85,491	45,250	38,670	83,920	921	650	1,571
	1896	45,162	39,767	84,929	44,177	39,058	83,235	985	709	1,694
	1895	43,081	37,973	81,004	42,047	37,210	79,257	984	763	1,747
Young Persons under 16.	1900	208,226	158,729	366,956*	206,054	157,179	363,224†	2,172	1,560	3,732‡
	1899	206,245	154,628	360,873§	204,230	152,981	357,211‖	2,015	1,647	3,662¶
	1898	175,871	127,394	303,265	173,897	126,081	299,978	1,974	1,313	3,287
	1897	161,552	120,138	281,690	159,689	118,903	278,592	1,863	1,235	3,098
	1896	160,191	119,963	280,154	158,443	118,311	276,754	1,748	1,652	3,400
	1895	134,808	105,852	240,660	133,398	104,512	237,910	1,410	1,320	2,730
TOTAL ..	1900	228,537	178,057	406,594	226,197	176,276	402,473	2,340	1,781	4,121
Do. ..	1899	231,137	181,004	412,141	228,850	179,050	407,900	2,287	1,954	4,241
Do. ..	1898	219,692	165,681	385,373	216,864	163,810	380,694	2,828	1,871	4,679
Do. ..	1897	207,723	159,458	367,181	204,939	157,573	362,512	2,784	1,885	4,669
Do. ..	1896	205,353	159,730	365,083	202,620	157,369	359,989	2,733	2,361	5,094
Do. ..	1895	177,889	143,825	321,654	175,445	141,722	317,167	2,394	2,083	4,477

CAUSES OF REJECTION.

Cause. (1.)	Rejections. Number. 1900. (2.)	Number. 1899. (3.)	Number. 1898. (4.)	Percentage of Applicants. 1900. (5.)	Percentage of Applicants. 1899. (6.)	Percentage of Applicants. 1898. (7.)
1. Imperfect growth, impaired use of limbs	223	266	211			
2. Defective sight, disease of eyes	389	324	315			
3. Deafness	54	42	46			
4. Mental defect	22	19	15			
5. Disease of heart or lungs	139	137	126			
6. Anæmia, debility	258	264	231	6·42	0·51	0·48
7. Infectious or contagious disease	81	76	65			
8. Disease of skin	215	223	254			
9. Want of cleanliness	213	239	211			
10. Other medical reasons	273	403	313			
11. Age	654	787	805	0·16	0·19	0·21
12. Other non-medical reasons	1,585	1,349	2,008	0·39	0·33	0·53
TOTAL	4,121	4,241	4,679	1·01	1·03	1·21

* Including 136,796 under 14 (74,681 males and 62,112 females).
† Including 135,041 under 14 (73,618 males and 61,423 females)
‡ Including 1,752 under 14 (1,063 males and 689 females).
§ Including 129,506 under 14 (70,104 males and 59,404 females).
‖ Including 127,506 under 14 (68,979 males and 58,524 females).
¶ Including 2,005 under 14 (1,125 males and 880 females).

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PERSONS (INCLUDED IN TABLES ON PREVIOUS PAGE) EXAMINED UNDER SPECIFIED EXCEPTIONAL CONDITIONS.

(1.)	Examined. For half time. (2.)	Examined. For full time. (3.)	Examined. Total. (4.)	Passed. (5.)	Rejected. (6.)	Examined in. 1899. (7.)	Examined in. 1898. (8.)
For employment in Workshops (permissive provision of s. 28, 1878).	52	343	395	393	2	*211*	*138*
For employment in Tenement Factories ..	47	449	496	496	—	?	?
For employment in more than one Factory, in the occupation of the same Occupier.	252	642	894	891	3	?	?
Referred by H.M. Inspectors for re-examination (s. 29, 1878).	—	4	4	3	1	*1*	—

	In 1900.	In 1899.	In 1898.
Number of Certifying Surgeons	2,022	2,007	1,948
Number of accidents reported to Certifying Surgeons	27,704	22,771	19,227

TABLE 5.—Certifying Surgeons.—Duties Performed in Pursuance of Special Rules for Dangerous Trades: 1900.

The figures, as regards Industries 1, 2, and 7, do not include adult males.

Industry. (1.)	Number of— Depart-ments. Works or (2.)	Examinations made. Males. (3.)	Examinations made. Females. (4.)	Suspensions. Males. (5.)	Suspensions. Females. (6.)	Suspensions. Total. (7.)	Suspensions. Adults. (8.)	Suspensions. Young Persons. (9.)	Suspensions. Children. (10.)	Cases reported under s. 29, 1895.* (11.)	Certificates permitting return to work after suspension. (12.)
1. Earthenware and China:—	**943**	**5,354**	**22,936**	**20**	**113**	**133**	**90**	**34**	—	**35**	**56**
Dipping-house	295	3,610	4,717	16	47	63	41	22	—	24	15
Ware cleaning	181	258	3,574	—	22	22	21	1	—	4	14
Glost placing	88	1,270	619	3	1	4	—	4	—	2	—
Ground laying, Glaze blowing	156	43	3,965	—	10	10	10	—	—	2	5
Colour dusting, Transfer making ..	39	28	1,042	—	8	8	7	1	—	—	6
Majolica painting	54	35	4,638	1	19	20	17	3	—	3	6
Other processes involving exposure to lead.	52	86	1,117	—	5	5	3	2	—	—	3
China scouring	78	25	3,264	—	1	1	—	1	—	—	1
2. Making Transfers for Earthenware and China.	**7**	**144**	**664**	—	**4**	**4**	**1**	**3**	—	**1**	—
3. Manufacture of Explosives in which Di-nitro-benzole is used.	**2**	**688**	**216**	**2**	**11**	**13**	**13**	—	—	—	—
4. Vulcanizing India-rubber by means of Bisulphide of Carbon.	**27**	**1,284**	**563**	**11**	**21**	**32**	**32**	—	—	—	**5**
5. White Lead	**6**	**10,830**	**4,286**	**139**	**13**	**152**	**152**	—	—	**17**	**7**
6. Red and Orange Lead	**5**	**1,206**	—	**9**	—	**9**	**9**	—	—	**9**	**4**
7. Enamelling of Iron Plates with aid of Lead, Arsenic, or Antimony.	**4**	**174**	**24**	**8**	**2**	**10**	**10**	—	—	**8**	**5**
TOTAL	**994**	**19,674**	**33,689**	**189**	**164**	**353**	**316**	**37**	—	**70**	**71**

* *i.e.*, Suspended cases reported by Certifying Surgeons to the Factory Department as suffering from lead, &c., poisoning.

NOTE.—The Special Rules for Earthenware and China Manufacture do not require the examination of male adults, but the Certifying Surgeons report the suspension of 19 men employed in dipping-houses, 1 in ground laying, and 2 in majolica painting. These are not included in the Table.

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TABLE 6.—Factories and Workshops under Special

Quarries (more than 20 feet deep) under Special

District.	Description of Works and Date of											
	White Lead.	Red and Orange Lead.	Yellow Lead.	Lead Smelting.	Paints, Colours &c.	Enamelling Iron Plates.	Tinning and Enamelling Iron Hollow Ware.	Tinning and Enamelling Metal Hollow Ware.	Lucifer Matches.	Earthenware and China, 24.12.92 and 7.5.98.		
										New Rules (May 1898).	New Rules (Oct. 1898 Arbitration).	Old Rules (1894).
	9.5.92.	2.1.94.	2.1.94.	2.1.94.	9.5.92.	9.5.92.	2.1.94	19.6.94	2.6.92.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1. North London	2	—	—	—	10	1	—	—	—	—	—	—
2. South London	2	—	—	2	23	1	—	—	1	5	—	9
3. West London	1	—	—	—	6	—	—	—	—	—	—	2
4. East London	3	—	—	1	49	1	—	—	5*	2	—	1
5. Kent	—	—	—	—	—	—	—	—	—	—	—	7
6. Southampton	—	—	—	—	3	—	—	—	—	—	1	10
7. Plymouth	—	—	—	—	13	—	—	—	—	10	—	2
8. Bristol	1	1	—	3	13	—	—	—	2†	1	1	—
9. Northampton	—	—	—	—	—	—	—	—	—	—	—	—
10. Norwich	—	—	—	—	—	—	—	—	—	—	—	—
SOUTHERN DIVISION	9	1	—	6	122	3	—	—	8	18	2	31
11. Birmingham	—	1	—	—	14	5	13	5	—	3	1	—
12. Worcester	—	—	—	—	1	—	—	—	—	3	5	—
13. Wolverhampton	—	—	—	1	3	6	19	—	—	5	7	4
14. South Staffordshire.. ..	—	1	—	—	2	—	3	—	—	1	1	—
15. North Staffordshire ..	—	—	—	—	13	—	—	—	—	165	201	—
16. Leicester	—	—	—	—	—	—	—	—	—	2	2	—
17. Nottingham	—	—	—	—	—	—	—	—	—	1	—	1
18. Derby	3	1	1	2	14	—	—	—	—	10	7	11
19. Lincoln	—	—	—	—	—	—	—	—	—	—	—	—
20. South Wales and Monmouthshire.	1	—	—	5	7	—	—	—	1	14	—	—
21. North Wales	—	2	—	2	3	—	—	—	—	4	1	1
MIDLAND DIVISION	4	5	1	10	57	11	34	5	1	208	225	17
22. Leeds	1	1	—	1	26	—	—	—	2	6	7	—
23. Sheffield	1	—	—	—	5	—	—	—	—	2	2	—
24. Huddersfield	—	—	—	—	5	—	—	—	—	4	—	—
25. Halifax	—	—	—	—	2	—	—	—	—	1	—	—
26. Bradford	—	—	—	—	1	—	—	—	—	—	2	—
27. Newcastle	7	6	5	6	7	—	—	—	—	7	6	1
NORTH EASTERN DIVISION	9	7	5	7	46	—	—	—	2	20	17	1
28. Manchester	1	—	—	—	27	2	2	—	2	2	1	—
29. Oldham	—	—	—	—	1	—	—	—	—	—	—	—
30. Rochdale	—	—	—	—	1	—	—	—	—	—	—	—
31. Bolton	—	—	—	—	3	—	—	—	—	—	1	—
32. Cheshire	—	—	—	—	3	—	—	—	—	2	—	1
33. Liverpool	2	—	—	5	34	—	—	—	2	4	1	—
34. Blackburn	—	—	—	—	6	1	—	—	—	2	—	—
35. Preston	—	—	—	1	3	—	—	—	—	2	1	—
NORTH WESTERN DIVISION	3	—	—	6	78	3	2	—	4	12	4	1
36. West Scotland	3	3	—	2	33	2	11	—	2	7	6	1
37. South West Scotland ..	—	—	—	1	1	—	—	—	—	—	2	2
38. South East Scotland ..	—	—	—	—	4	—	1	—	—	4	—	3
39. East Scotland	—	—	—	—	—	—	—	—	—	5	—	1
40. North Scotland	—	—	—	1	2	—	—	—	1	—	—	1
41. North Ireland	—	—	—	—	—	—	—	—	—	1	—	2
42. South Ireland	—	1	—	1	3	—	—	—	1	1	1	—
SCOTLAND AND IRELAND DIVISION ..	3	4	—	5	43	2	12	—	4	18	9	10
UNITED KINGDOM ..	28	17	6	34	346	19	43	5	19	276	257	60

* It is reported that in one of these the use of yellow phosphorus has been discontinued.

† It is reported that in one of these the use of yellow phosphorus has been discontinued.

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Rules, and Humidifying Textile Factories, 1900.

Rules are inspected by H.M. Inspectors of Mines.

Certification by the Secretary of State.														Humidifying Textile Factories.‡	
Making of Transfers for Earthenware and China.	Explosives (where di-nitro-benzole is used).	Chemicals.	Bichromate.	Electric Accumulator.	Yellow Chromate of Lead.	Brass, &c.	Aërated Water.	Wool Sorting.	Wool Combing, &c.	Vulcanising of India-rubber by means of Bi-sulphide of Carbon.	Flax. 3.1.94.				
											Humidifying.‡		Dry Spinning.		
						5.5.94 and					Spinning.	Weaving.			
3.8.98.	24.12.92.	24.12.92.	24.12.92.	2.1.94.	9.4.95.	1.1.96.	11.9.96.	23.7.96.	28.11.99.	1.12.96.				Under 1897 Act.	Under s. 31, 1895 Act.
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
—	—	—	—	3	—	33	40	—	—	1	—	—	—	—	—
—	—	14	—	2	—	60	160	—	—	1	—	—	—	—	—
—	—	3	—	3	—	23	105	—	—	—	—	—	—	—	—
—	—	46	—	4	—	70	118	—	—	3	—	—	—	—	—
—	—	5	—	—	—	21	94	—	—	—	—	—	—	—	—
—	—	3	—	—	—	10	128	—	—	—	—	—	—	—	—
—	—	9	—	—	—	11	101	—	—	—	—	—	—	—	—
1	—	8	—	—	—	8	119	—	—	—	—	—	—	6	1
—	—	—	—	—	—	20	60	—	—	—	—	—	—	—	—
—	—	5	—	—	—	41	89	1	—	—	—	—	—	—	—
1	—	93	—	12	—	297	1,014	1	—	5	—	—	—	6	1
—	—	11	—	—	—	385	74	—	—	1	—	—	—	—	5
—	—	3	—	—	—	3	37	3	4	—	—	—	—	—	—
—	—	8	—	—	—	97	60	—	—	—	—	—	—	—	—
—	—	8	—	—	—	97	25	—	—	—	—	—	—	—	—
5	—	17	—	1	—	25	40	—	—	—	—	—	—	—	1
—	—	1	—	—	—	12	44	—	—	—	—	—	—	—	—
—	—	5	—	—	—	19	35	—	—	1	—	—	—	—	12
—	—	6	—	1	1	21	41	—	—	—	—	—	—	8	12
—	—	6	—	—	—	15	62	—	—	—	—	—	—	—	—
—	—	78	—	2	—	131	117	—	—	—	—	—	—	—	—
—	—	12	—	—	—	26	55	—	—	—	—	—	—	—	—
5	—	155	—	4	1	831	590	3	4	2	—	—	—	8	30
—	—	9	—	—	—	82	147	—	—	—	—	—	1	—	—
—	—	14	—	—	—	98	57	—	—	—	—	—	—	—	—
—	—	32	—	—	—	18	39	1	—	—	—	—	—	2	18
—	—	8	—	—	—	23	22	3	2	—	1	—	—	37	26
—	—	9	—	—	1	44	56	43	133	—	—	—	—	2	82
1	—	39	—	1	—	71	189	—	1	—	—	—	1	—	13
1	—	111	—	1	1	336	510	47	136	—	1	—	2	41	199
—	—	59	1	1	4	97	79	—	—	15	5	—	—	13	23
—	—	7	—	—	—	16	18	—	—	—	—	—	—	12	37
—	—	17	—	—	2	28	30	—	—	—	—	—	—	239	26
—	2	3	1	—	4	18	41	—	—	1	—	—	—	51	59
—	—	6	—	1	10	29	38	—	—	3	—	—	—	38	59
—	—	64	1	—	—	71	107	—	—	—	—	—	—	—	—
—	—	9	—	—	5	26	39	—	—	—	—	—	—	354	12
—	—	5	—	—	—	33	127	1	—	—	4	—	—	68	1
—	2	170	3	2	25	318	432	1	—	19	9	—	—	765	217
—	—	51	4	—	8	136	119	—	—	3	2	—	2	—	1
—	—	14	—	—	—	17	48	—	—	—	6	—	—	—	—
—	—	4	—	—	—	17	60	—	—	44	—	—	1	—	—
—	—	4	—	—	—	28	83	1	—	—	1	—	44	—	4
—	—	3	—	—	—	22	60	—	—	—	—	—	4	—	2
—	—	2	—	—	—	28	58	—	—	—	149	87	—	—	—
—	—	11	—	—	—	30	101	—	—	—	2	5	—	—	—
—	—	39	4	—	8	278	529	1	—	7	160	92	51	—	7
7	2	618	7	19	35	2,060	3,125	53	140	33	170	92	53	320	394

‡ Each room is separately counted.

§ It is reported that in two of these the use of bi-sulphide of carbon has been discontinued.

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TABLE 7.—Notices served

Description of Notice.	Act and Section.	Number of Notices																		
		1. North London.	2. South London.	3. West London.	3a. Works assigned to Miss Deane.	4. East London.	5. Kent.	6. Southampton.	7. Plymouth.	8. Bristol.	9. Northampton.	10. Norwich.	11. Birmingham.	12. Worcester.	13. Wolverhampton.	14. South Staffordshire.	15. North Staffordshire.	16. Leicester.	17. Nottingham.	18. Derby.	19. Lincoln.
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)	(11.)	(12.)	(13.)	(14.)	(15.)	(16.)	(17.)	(18.)	(19.)	(20.)	(21.)	(22.)
To be served on H.M. Inspector.																					
Notice of intention to employ adults only. (In this case the prescribed periods of employment of women under ss. 15, 42, 43 (1878) are relaxed.)	1891, s. 13	7	1	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	4	1	—
Notice of intention to employ adults only in scutch mills. (Relaxation as to period of employment of women.)	1878, s. 62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Notice of occupation of a factory or workshop.	1878, s. 75 1891, s. 26 1895, s. 41	752	409	191	184	349	102	104	14	111	164	87	760	79	152	173	52	143	87	136	61
Notice of production of artificial humidity.	1889, s. 8 1895, s. 31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Notice of ceasing to produce artificial humidity.	1889, s. 11 1895, s. 31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Notice of time lost in water mills.	1878, ss. 57, 66	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—
Factory overtime report .. (*See also Table* 8.)	1878, ss. 53, 66 Sch. 3, Part 3 1895, ss. 14, 37	2,935	2,203	1,808	283	1,013	342	315	170	1,515	265	903	836	143	366	406	415	670	420	533	24
Workshop overtime report (*See also Table* 9.)	Do.	4,336	5,855	2,940	5,550	4,558	1,847	3,194	3,322	2,759	1,345	4,819	2,599	316	1,548	881	1,123	1,424	1,146	993	1,62
Notice of accident .. .. (*See also Tables* 10-18.)	1895, s. 18	2,055	3,545	1,445	33	3,104	1,985	1,220	1,472	1,818	354	928	2,649	329	2,359	1,519	809	779	528	1,898	47
Notice of poisoning, &c. .. (*See also Table* 20.)	1895, s. 29	9	59	49	—	192	5	10	15	25	5	2	59	5	36	5	186	2	3	29	—
To be served on H.M. Inspector and kept in the Works																					
List of outworkers in certain manufactures.	1895, s. 42	104	138	61	63	100	13	75	21	148	126	133	53	40	12	33	26	92	20	35	13
To be served on H.M. Inspector and exhibited in the Works.																					
Notice of intention to work between 9 a.m. and 9 p.m. (A limited class of non-textile factories and workshops may work on this system.)	1878, ss. 43, 66	9	2	—	—	1	—	—	—	—	34	—	—	—	—	—	—	—	—	1	—
Notice of intention to employ male young persons above 16 in lace factories between 4 a.m. and 10 p.m. (This is permitted under strict conditions as to meals and rest, and intervals between periods of employment.)	1878, ss. 44, 66	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	—
Notice of intention to employ male young persons above 16 in bakehouses between 5 a.m. and 9 p.m. (This is permitted under strict conditions as to meals and rest, and intervals between periods of employment.)	1878, ss. 45, 66	1	2	—	—	—	—	1	—	1	—	—	3	—	1	1	2	1	1	—	—

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received in each District.

20. South Wales and Monmouthshire.	21. North Wales.	22. Leeds.	23. Sheffield.	24. Huddersfield.	25. Halifax.	26. Bradford.	27. Newcastle.	28. Manchester.	29. Oldham.	30. Rochdale.	31. Bolton.	32. Cheshire.	33. Liverpool.	34. Blackburn.	35. Preston.	36. West Scotland.	37. South West Scotland.	38. South East Scotland.	39. East Scotland.	40. North Scotland.	41. North Ireland.	42. South Ireland	Textile Factories using artificial humidity.	Total in 1900.	*Total in 1899.*
(23.)	(24.)	(25.)	(26.)	(27.)	(28.)	(29.)	(30.)	(31.)	(32.)	(33.)	(34.)	(35.)	(36.)	(37.)	(38.)	(39.)	(40.)	(41.)	(42.)	(43.)	(44.)	(45.)	(46.)	(47.)	(48.)
—	—	—	—	1	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	21	*36*
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
323	11	860	238	152	106	137	451	557	47	99	55	64	386	106	154	562	70	437	432	41	10	—	—	3,438	*10,107*
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	31	31	*42*
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32	32	*26*
—	—	—	—	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11	*38*
312	199	22,982	308	512	446	364	1,525	3,977	465	434	311	799	1,178	305	635	4,403	408	1,924	604	538	3,365	975	—	42,760	*50,645*
4,988	753	4,914	3,435	1,381	1,580	1,606	5,295	4,529	909	1,419	1,677	962	3,914	2,319	3,384	9,461	2,024	979	1,621	1,528	4,087	1,916	—	116,468	*125,756*
2,736	355	3,289	2,496	787	573	1,073	7,641	4,041	2,268	1,579	2,038	1,774	4,696	809	2,642	6,758	409	549	788	422	968	620	—	79,029	*70,760*
23	4	20	·45	—	2	—	207	52	2	—	2	21	29	9	6	21	2	4	1	1	2	—	—	1,149	*887*
55	2	213	296	18	25	16	161	753	10	2	4	20	105	28	43	96	24	38	8	90	251	200	—	3,774	*4,777*
—	1	—	—	—	—	—	—	3	—	—	—	—	—	—	2	1	—	—	—	—	—	1	—	55	*31*
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	—	—	—	—	—	—	17	*1*
—	—	1	—	—	—	—	—	—	—	—	—	—	2	—	—	17	31	19	16	23	—	—	—	113	*143*

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TABLE 7.—Notices served

Description of Notice.	Act and Section.	Number of Notices																			
		1. North London.	2. South London.	3. West London.	3a. Works assigned to Miss Deane.	4. East London.	5. Kent.	6. Southampton.	7. Plymouth.	8. Bristol.	9. Northampton.	10. Norwich.	11. Birmingham.	12. Worcester.	13. Wolverhampton.	14. South Staffordshire.	15. North Staffordshire.	16. Leicester.	17. Nottingham.	18. Derby.	19. Lincoln.
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)	(11.)	(12.)	(13.)	(14.)	(15.)	(16.)	(17.)	(18.)	(19.)	(20.)	(21.)	(22.)
To be served on H.M. Inspector and exhibited in the Works—*cont.*																					
Notice of intention to substitute another day for Saturday. (In certain occupations and districts another early closing day may be fixed instead of Saturday.)	1878, ss 46, 66	28	261	72	21	40	36	140	53	29	119	111	61	3	86	54	85	34	47	65	16
Notice of intention to continue work for five hours without an interval. (Extended only to a certain class of textile factories.)	1878, ss. 48, 66 Sch. 3, Part 7	2	—	1	—	—	—	—	—	—	—	—	5	—	—	—	—	58	10	2	—
Notice of intention to allow different holidays to different sets of persons employed. (In certain occupations and districts the annual statutory holidays may be allowed to various persons at various dates.)	1878, ss. 49, 66	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—
Notice of intention of Jewish occupier to avail himself of modifications in respect to holidays, overtime, and Sunday employment. (Privileges allowed in case of the Jewish Sabbath, &c.)	1878, ss. 50, 51, 66.	66	—	2	1	60	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—
Notice of intention to allow different meal hours to different sets, and the employment of one set during the meal hour of another. (Trades in which continuous processes are carried on, those in which nightwork is allowed, and a few others are entitled to this modification.)	1878, ss. 52, 66 Sch. 3, Part 2	21	10	17	54	3	7	5	—	7	2	2	3	—	3	4	10	2	5	13	—
Notice of intention to work overtime (1878, s. 53).	1878, ss. 53, 66 Sch. 3, Part 3 1895, ss. 14, 37	189	239	107	159	96	37	98	63	51	63	97	68	3	29	28	24	45	14	49	6
Notice of intention to work overtime (laundries).	1878, s. 66 1895, s. 22	2	14	19	24	2	4	1	—	—	—	3	—	—	—	—	—	—	—	—	—
Notice of intention to work overtime (incomplete process).	1878, s. 54 Sch. 3, Part 4	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Notice of intention to work overtime (Turkey red dyeing and open-air bleaching).	1878, s. 55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Notice of intention to work overtime (perishable articles).	1878, ss. 56, 66 Sch. 3, Part 5 1895, s. 14	2	3	—	—	2	1	1	—	—	—	6	—	—	—	—	—	—	—	1	—
Notice of intention to recover lost time in water-mills.	1878, ss. 57, 66	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Notice of intention to employ male young persons on night shifts. (In certain trades in which continuous processes are carried on, male young persons may be employed at night in alternate weeks.)	1878, ss. 58, 66 Sch. 3, Part 6 1895, ss. 14, 38	1	—	1	—	1	2	—	—	2	—	—	1	—	4	9	—	—	—	1	—

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on H.M. Inspectors: 1900—*cont.*

received in each District.

20. South Wales and Monmouthshire.	21. North Wales.	22. Leeds.	23. Sheffield.	24. Huddersfield.	25. Halifax.	26. Bradford.	27. Newcastle.	28. Manchester.	29. Oldham.	30. Rochdale.	31. Bolton.	32. Cheshire.	33. Liverpool.	34. Blackburn.	35. Preston.	36. West Scotland.	37. South West Scotland.	38. South East Scotland.	39. East Scotland.	40. North Scotland.	41. North Ireland.	42. South Ireland.	Textile Factories using artificial humidity.	Total in 1900.	*Total in 1899.*
(18.)	(34.)	(25.)	(26.)	(27.)	(28.)	(29.)	(30.)	(31.)	(32.)	(33.)	(34.)	(35.)	(36.)	(37.)	(38.)	(39.)	(40.)	(41.)	(42.)	(43.)	(44.)	(45.)	(46.)	(47.)	(48.)
80	19	284	111	43	66	81	112	45	7	19	11	20	96	156	145	116	50	33	65	87	145	215	—	3,394	*3,581*
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	1	—	—	76	*65*
—	3	—	3	—	2	—	—	—	—	—	—	—	1	—	—	1	2	3	—	6	—	1	—	24	*16*
1	—	66	2	—	—	—	1	60	—	—	—	—	5	—	—	2	—	—	—	—	—	1	—	272	*327*
30	1	7	8	1	5	3	3	9	—	2	—	1	7	—	7	35	24	15	2	2	3	15	—	348	*354*
50	8	248	85	26	56	37	147	193	15	26	23	24	80	87	135	228	111	287	70	73	268	73	—	3,348	*3,936*
2	—	10	—	—	2	—	—	3	—	—	—	—	1	—	1	4	9	7	4	2	—	1	—	115	*87*
—		—	1	—	—	—	—	—	—	—	—	—	—	—	1	3	5	3	—	—	—	1	—	15	*5*
—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	*1*
—	—	—	—	—	—	—	1	—	—	1	—	2	4	—	1	4	—	5	2	—	—	9	—	43	*27*
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	?
4	—	10	8	—	—	2	3	3	—	1	1	—	—	—	—	11	—	1	—	—	1	—	—	66	*66*

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TABLE 7.—Notices served

Description of Notice.	Act and Section.	Number of Notices																		
		1. North London.	2. South London.	3. West London.	3a. Works assigned to Miss Deane.	4. East London.	5. Kent.	6. Southampton.	7. Plymouth.	8. Bristol.	9. Northampton.	10. Norwich.	11. Birmingham.	12. Worcester.	13. Wolverhampton.	14. South Staffordshire.	15. North Staffordshire.	16. Leicester.	17. Nottingham.	18. Derby.	19. Lincoln.
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)	(11.)	(12.)	(13.)	(14.)	(15.)	(16.)	(17.)	(18.)	(19.)	(20.)	(21.)	(22.)
To be served on H.M. Inspector and exhibited in the Works—*cont.*																					
Notice of intention to employ male young persons above 16 as adults on two nights a week on newspaper work.	1878, ss. 59, 66; 1895, s. 14	1	3	4	—	1	2	—	1	2	1	1	—	—	—	—	—	1	1	1	—
Notice of intention to employ male young persons during the accustomed hours of the trade in glass works. (*i.e.*, on night and day shifts with an equivalent interval for rest between periods of employment.)	1878, ss. 60, 66; 1895, s. 14	—	—	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Notice of intention to work eight hours on Saturdays. (Where the ordinary period of employment does not exceed eight hours per diem, such hours may be worked on Saturday.)	1891, s. 15	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Notice of intention to alter period of employment. (The hours of work must be fixed and exhibited in a notice. Notice of intention to make any change must be sent and affixed on premises.)	1878, s. 19	23	13	9	1	13	18	13	3	56	20	28	53	2	44	73	7	122	13	23	—
Notice of intention to alter meal hours. (This must be dealt with in same manner as alteration of period of employment.)	1878, s. 19	12	6	11	8	9	6	2	1	35	3	3	13	—	4	17	—	31	3	2	—
Notice of intention to alter system of employment of half-time children. (*i.e.*, either on half-days only, or on alternate days only.)	1878, s. 19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Notice of fixture of statutory holidays during the year.	1878, s. 22; 1891, s. 16; 1895, s. 17	131	145	77	93	10	29	18	14	55	43	46	137	5	135	137	77	200	52	40	11
Monthly Thermometer Records under Cotton Cloth Factories Acts and Flax Special Rules. — Cotton Cloth Factories	1889, s. 7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Flax Factories:— Spinning	1891, s. 8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Weaving	1891, s. 8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total—Flax	1891, s. 8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Textile Factories:— Wool, Dry Process	1895, s. 31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worsted, Dry Process.	1895, s. 31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cotton Spinning	1895, s. 31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cotton Winding	1895, s. 31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Wool Spinning	1895, s. 31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worsted Spinning	1895, s. 31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Silk Spinning	1895, s. 31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Silk Winding	1895, s. 31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hemp Carding, &c.	1895, s. 31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Jute Spinning	1895, s. 31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Flax Spinning	1895, s. 31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total—Other Textile Factories.	1895, s. 31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total		10,688	12,899	6,816	6,479	9,560	4,438	5,195	5,149	6,614	2,444	7,170	7,206	925	4,779	3,345	2,826	3,599	2,414	3,632	2,56

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ɔn H.M. Inspectors: 1900—*cont.*

eceived in each District.

20. South Wales and Monmouthshire	21. North Wales.	22. Leeds.	23. Sheffield.	24. Huddersfield.	25. Halifax.	26. Bradford.	27. Newcastle.	28. Manchester.	29. Oldham.	30. Rochdale.	31. Bolton.	32. Cheshire.	33. Liverpool.	34. Blackburn.	35. Preston.	36. West Scotland.	37. South West Scotland.	38. South East Scotland.	39. East Scotland.	40. North Scotland.	41. North Ireland.	42. South Ireland.	Textile Factories using artificial humidity.	Total in 1900.	*Total in 1899.*
(20.)	(21.)	(25.)	(26.)	(27.)	(28.)	(29.)	(30.)	(31.)	(32.)	(33.)	(34.)	(35.)	(36.)	(37.)	(38.)	(39.)	(40.)	(41.)	(42.)	(43.)	(44.)	(45.)	(46.)	(47.)	(48.)
—	—	5	1	—	—	2	—	—	—	2	—	—	2	2	1	6	5	—	1	—	—	2	—	48	37
—	—	1	5	1	—	—	2	2	—	—	—	—	4	—	—	2	—	2	1	—	—	—	—	24	28
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	2	—
11	—	16	16	—	73	35	11	36	3	15	16	13	11	56	37	78	25	15	—	7	6	2	—	1,006	1,002
3	—	28	1	46	107	9	5	18	5	45	16	13	8	22	6	51	30	3	1	—	5	—	—	586	548
—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	3	3
74	12	129	107	99	180	166	155	235	115	315	174	88	82	452	81	2,558	912	431	211	673	1,068	316	—	10,006	10,273
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18,773	18,773	18,714
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,971	3,971	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2,152	2,152	5,030
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6,123	6,123	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	191	191	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	602	602	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4,575	4,575	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	294	294	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	215	215	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,951	1,951	7,859
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	120	120	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24	24	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	78	78	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	7	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	4	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8,061	8,061	
592	1,368	13,013	7,161	3,076	3,235	3,481	15,720	15,117	3,846	3,960	4,328	3,801	10,613	4,334	7,281	24,419	4,141	4,755	3,827	3,494	10,120	348	33,020	305,794	314,158

* 30 of these referred to Hemp Spinning not under s. 31, 1895.

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TABLE 8.—Factor

PROCESS. (1.)	NUMBER OF OVERTIME REC																				
	1. North London.* (2.)	2. South London. (3.)	3. West London.* (4.)	3a. Works assigned to Miles Deane. (5.)	4. East London.* (6.)	5. Kent. (7.)	6. Southampton. (8.)	7. Plymouth. (9.)	8. Bristol. (10.)	9. Northampton. (11.)	10. Norwich. (12.)	11. Birmingham. (13.)	12. Worcester. (14.)	13. Wolverhampton. (15.)	14. South Staffordshire. (16.)	15. North Staffordshire. (17.)	16. Leicester. (18.)	17. Nottingham. (19.)	18. Derby. (20.)	19. Lincoln. (21.)	20. South Wales. (22.)
Under Section 52, and Schedule 3, part 3 (1878):																					
1. Flax scutching	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2. Making or finishing of bricks or tiles, not being ornamental tiles.	—	—	—	—	—	—	—	—	—	—	—	—	—	23	2	2	—	—	—	—	—
3. Open air rope making ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4. Open air bleaching ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5. Turkey red dyeing .	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6. Glue making	—	15	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	1	—	27	2
7. Letterpress printing ..	650	183	548	—	70	51	14	43	159	19	55	214	77	1	34	15	41	28	149	30	6
8. Bookbinding	693	224	443	—	81	4	45	13	115	1	106	14	16	18	61	—	40	23	50	80	6
9. Lithographic printing ..	148	75	147	—	5	—	—	—	—	—	—	6	—	—	8	—	—	19	8	7	—
10. Machine ruling	23	1	4	—	—	—	9	—	—	—	—	—	—	—	7	—	—	—	1	—	—
11. Firewood cutting.. ..	—	1	11	—	—	—	—	—	—	—	19	19	—	—	—	—	—	—	—	—	—
12. Bon-bon and Christmas present making.	142	125	49	—	267	—	—	3	36	—	21	31	—	—	—	—	—	—	—	—	—
13. Almanack making ..	25	27	—	—	1	—	—	—	32	—	—	—	—	—	—	—	—	12	—	—	—
14. Valentine making .	17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
15. Envelope making .	52	15	42	—	—	—	—	—	—	—	8	—	—	—	16	—	—	—	4	—	—
16. Aërated water making..	49	147	128	—	17	20	22	15	92	—	16	167	—	—	22	—	—	—	8	15	1
17. Making of boxes for aërated water bottles.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18. Playing card making ..	14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
19. Making up of any article of wearing apparel.	355	82	5	—	219	13	42	56	832	241	350	56	15	73	69	219	465	240	59	—	—
20. Making up of furniture hangings.	3	—	9	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—
21. Artificial flower making	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
22. Fancy box making ..	233	32	59	—	52	—	—	—	72	3	6	41	23	31	9	—	65	64	18	—	—
23. Biscuit baking	27	26	36	—	45	—	—	4	—	—	—	11	—	—	—	—	—	—	—	—	2
24. Job dyeing..	—	70	103	—	—	—	33	—	—	—	—	—	—	—	—	—	17	—	—	20	1
25. Warehouses (Textile) ..	—	—	—	—	—	—	—	—	—	—	—	10	—	—	7	24	4	—	—	—	—
26. Do. (Non-textile)	153	240	27	—	74	27	—	—	38	—	53	234	9	185	143	155	—	—	21	—	2
27. Die sinking..	—	—	12	—	—	—	28	—	—	—	—	10	—	—	—	—	—	—	—	—	—
28. Cardboard making ..	29	—	14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
29. Paper colouring and enamelling.	29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
30. Rolling of tea lead ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
31. Making gasholders, boilers, &c., partly manufactured in the open air.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
32. Dressing floors, tin streams, china claypits and quarries (in Cornwall).	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
33. Making of fireworks ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
34. Making of pork pies ..	—	—	—	—	—	—	—	—	—	—	—	—	—	20	—	—	38	—	—	—	—
35. Calendering, finishing, &c., of yarn or cloth.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30	—	—
36. Milling, perforating, and gumming Inland Revenue stamps and postal stationery.	41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
37. Beer bottling	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
38. Washing of bottles for use in the preserving of fruit.	15	5	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL	2,697	1,263	1,657	—	832	115	193	134	1,378	264	635	813	140	351	378	415	670	387	348	188	218

* The boundaries of these Districts

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ɪrtime Reports, 1900.

VED IN EACH DISTRICT.

22. Leeds. (24.)	23. Sheffield. (25.)	24. Huddersfield. (26.)	25. Halifax. (27.)	26. Bradford. (28.)*	27. Newcastle. (29.)	28. Manchester. (30.)	29. Oldham. (31.)	30. Rochdale. (32.)	31. Bolton. (33.)	32. Cheshire. (34.)	33. Liverpool. (35.)	34. Blackburn. (36.)	35. Preston. (37.)	36. West Scotland. (38.)	37. South-West Scotland. (39.)	38. South-East Scotland. (40.)	39. East Scotland. (41.)	40. North Scotland. (42.)	41. North Ireland. (43.)	42. South Ireland. (44.)	Total in 1900. Total Number of Places. (45.)	Total in 1900. Total Number of Reports. (46.)	Total Number of Reports in 1899 (47.)	Total Number of Reports in 1898. (48.)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	3	—	—	—	—	—	—	—	—	8	—	—	17	—	—	—	7	55	52	50
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	66	72
—	—	—	—	—	—	—	—	—	20	—	5	—	—	—	—	—	—	—	—	—	7	97	59	42
469	21	98	37	150	467	740	24	75	58	32	157	36	109	584	37	373	35	117	134	205	541	6,376	6,536	6,537
309	21	16	1	62	239	224	20	—	2	42	173	—	22	336	12	302	22	55	160	113	338	4,247	4,759	4,356
90	—	5	19	21	52	146	—	—	32	—	42	—	27	122	—	106	—	46	73	18	114	1,222	1,596	1,613
1	—	—	—	—	—	21	—	—	—	—	—	—	—	85	—	14	—	17	—	31	23	211	310	312
—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	52	105	83
99	69	—	—	—	42	6	18	—	—	3	30	—	30	161	29	103	77	—	31	77	100	1,448	1,601	1,511
56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	153	167	186
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	17	14	19
—	—	—	—	—	—	57	—	3	—	3	—	—	45	22	—	90	—	4	7	29	29	397	585	578
7	47	—	1	—	291	71	—	—	10	—	147	1	—	91	24	29	4	20	—	3	174	1,534	1,987	1,595
—	—	—	—	—	—	29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	23	37	9
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	14	26	19
1,434	7	150	332	50	23	1,344	227	196	59	430	83	110	89	1,127	128	96	58	31	2,431	191	927	11,975	15,601	11,685
—	—	—	—	—	—	—	—	—	—	—	—	—	11	14	—	—	—	32	—	—	9	71	60	98
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	—
46	21	—	—	—	18	181	11	1	10	56	141	—	30	102	—	68	10	32	77	29	136	1,541	2,343	1,787
—	—	—	—	—	25	1	13	—	31	—	3	—	32	248	5	141	25	28	—	11	53	733	787	756
11	—	92	13	—	24	20	7	—	—	50	7	35	—	61	21	—	144	—	—	39	48	730	864	898
—	—	—	—	4	—	22	—	—	61	11	—	—	—	—	2	45	—	4	—	—	17	194	222	69
37	101	14	22	—	149	157	47	39	—	5	85	4	58	295	12	396	2	66	23	—	229	2,894	2,584	2,191
—	—	—	—	—	31	9	—	—	—	—	—	—	—	—	—	—	—	13	—	—	7	103	29	31
—	—	—	—	—	—	15	—	—	—	—	—	—	—	44	—	—	—	—	—	—	6	102	65	83
23	—	—	—	—	—	6	—	—	—	—	—	—	—	66	—	—	—	15	—	—	7	139	159	148
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
—	—	—	—	15	—	—	—	—	—	—	4	—	—	13	—	—	—	—	—	—	19	90	111	77
—	—	—	—	—	—	690	55	16	45	95	—	37	—	537	8	—	29	—	283	—	157	1,775	2,778	2,889
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	41	25	10
—	8	—	—	—	54	7	—	—	—	—	12	—	—	—	—	—	—	—	—	7	19	88	107	126
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28	—	—	—	—	4	49	?	Not allowed.
2,582	295	375	415	302	1,418	3,748	422	330	308	733	889	223	403	3,914	278	1,790	423	480	3,169	753	2,972	36,433	43,521	38,332

*adjusted on August 1st, 1900.

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TABLE 8.—Factory

PROCESS.	NUMBER OF OVERTIME REPORTS																				
	1. North London.*	2. South London.	3. West London.*	3a. Works assigned to Miss Deane.	4. East London.*	5. Kent.	6. Southampton.	7. Plymouth.	8. Bristol.	9. Northampton.	10. Norwich.	11. Birmingham.	12. Worcester.	13. Wolverhampton.	14. South Staffordshire.	15. North Staffordshire.	16. Leicester.	17. Nottingham.	18. Derby.	19. Lincoln.	20. South Wales & Monmouth.
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)	(11.)	(12.)	(13.)	(14.)	(15.)	(16.)	(17.)	(18.)	(19.)	(20.)	(21.)	(22.)
Under Section 54, and Schedule 3, part 1 (1878):																					
39. Bleaching and dyeing ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40. Calico, &c. printing ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
41. Iron mills, in which male young persons are not employed during any part of the night.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
42. Foundries, in which male young persons are not employed during any part of the night.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
43. Paper mills, in which male young persons are not employed during any part of the night.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
44. Bread and biscuit baking	—	—	—	—	—	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
45. Dressing floors, tin streams, china claypits and quarries (in Cornwall).	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL	—	—	—	—	—	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Under Section 55 (1878):																					
46. Turkey red dyeing ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
47. Open air bleaching ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Under Section 56, and Schedule 3, part 3 (1878):																					
48. Making preserves from fruit.	62	104	51	—	163	—	36	5	60	—	38	20	—	—	—	—	—	27	24	36	6
49. Preserving or curing fish	—	—	—	—	—	—	—	2	—	—	74	—	—	—	—	—	—	—	—	—	—
50. Making condensed milk	—	—	25	—	—	—	—	—	13	—	—	—	—	—	—	—	—	—	—	—	—
51. Preparing cream, and butter and cheese making.	—	21	9	—	—	—	12	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL	62	125	85	—	163	—	48	7	82	—	112	20	—	—	—	—	—	27	24	36	6
Under Section 57 (1878):																					
52. Factories in which water power alone is used to move machinery.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	136	—	1
Under Section 22 (1895):																					
53. Laundries	170	810	86	283	18	187	74	29	55	1	156	3	3	15	28	—	—	6	25	40	14
Grand Total	**2,935**	**2,203**	**1,398**	**283**	**1,913**	**342**	**315**	**179**	**1,515**	**265**	**903**	**336**	**143**	**366**	**496**	**415**	**676**	**429**	**533**	**264**	**312**

* The boundaries of these Districts

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Overtime Reports, 1900—*continued.*

RECEIVED IN EACH DISTRICT.																					Total in 1900.		Total Number of Reports in	
21. North Wales. (23.)	22. Leeds. (24.)	23. Sheffield. (25.)	24. Huddersfield. (26.)	25. Halifax. (27.)	26. Bradford. (28.)	27. Newcastle. (29.)	28. Manchester. (30.)	29. Oldham. (31.)	30. Rochdale. (32.)	31. Bolton. (33.)	32. Cheshire. (34.)	33. Liverpool. (35.)	34. Blackburn. (36.)	35. Preston. (37.)	36. West Scotland. (38.)	37. South-West Scotland. (39.)	38. South-East Scotland. (40.)	39. East Scotland. (41.)	40. North Scotland. (42.)	41. North Ireland. (43.)	42. South Ireland. (44.)	Total Number of Places. (45.)	Total Number of Reports. (46.)	1899. (47.)	1898. (48.)
—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	1	3	45	1
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20	—	—	—	—	—	3	20	3	63
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	50	—	—	—	—	2	99	33	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	20	50	—	—	—	—	6	122	80	65
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	113	—	—	—	6	14	117	34	70	—	19	124	16	22	123	—	29	152	9	38	7	87	1,532	1,656	1,730
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	76	62	83
—	—	—	—	—	—	—	—	—	—	—	45	—	—	—	—	—	—	—	—	—	33	9	116	185	92
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	84	9	126	93	86
—	113	—	—	—	6	14	117	34	70	—	64	124	16	22	123	—	29	152	9	38	124	109	1,850	1,996	1,991
—	—	—	69	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	221	231	22
77	287	8	68	31	58	93	112	9	34	—	2	185	66	210	366	110	46	39	49	158	98	464	4,143	4,817	4,151
199	2,982	303	512	446	364	1,525	3,977	465	434	311	799	1,178	305	635	4,493	498	1,924	604	538	3,365	975	3,496	42,769	50,645	44,561

were re-adjusted on August 1st, 1900.

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TABLE 9.—Workshop

PROCESS. (1.)	NUMBER OF OVERTIME REPORT																				
	1. North London.* (2.)	2. South London. (3.)	3. West London.* (4.)	3a. Works assigned to Miss Deane. (5.)	4. East London.* (6.)	5. Kent. (7.)	6. Southampton. (8.)	7. Plymouth. (9.)	8. Bristol. (10.)	9. Northampton. (11.)	10. Norwich. (12.)	11. Birmingham. (13.)	12. Worcester. (14.)	13. Wolverhampton. (15.)	14. South Staffordshire. (16.)	15. North Staffordshire. (17.)	16. Leicester. (18.)	17. Nottingham. (19.)	18. Derby. (20.)	19. Lincoln. (21.)	20. South Wales and Monmouth. (22.)
Under Section 52, and Schedule 3, part 3 (1878):																					
1. Making or finishing bricks or tiles not being ornamental tiles.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2. Open air rope making ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3. Glue making	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4. Lithographic printing ..	—	—	—	—	—	—	—	—	18	—	—	—	—	—	—	—	—	—	—	—	—
5. Machine ruling	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6. Firewood cutting	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7. Bon-bon and Christmas present making.	131	26	55	—	11	—	—	—	21	—	—	9	—	—	—	—	—	—	—	—	—
8. Almanack making ..	21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9. Valentine making	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10. Envelope making	—	—	15	—	—	—	—	—	—	—		3	—	—	19	—	—	—	—	—	—
11. Aërated water making ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12. Making of boxes for aërated water bottles.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13. Playing card making ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
14. Making up of any article of wearing apparel.	3,795	5,610	2,517	5,474	4,512	1,796	3,150	3,256	2,619	1,245	4,616	2,441	303	1,541	814	1,022	1,391	1,057	966	1,483	4,48
15. Making up of furniture hangings.	1	39	112	2	—	11	24	28	17	—	135	4	1	—	—	26	—	55	—	—	2
16. Artificial flower making..	2	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
17. Fancy box making ..	258	66	203	—	32	—	—	—	—	—	—	44	2	—	7	75	33	25	—	—	—
18. Biscuit baking	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
19. Job dyeing	—	—	—	—	—	—	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—
20. Warehouses	83	17	6	—	2	—	—	5	2	—	12	61	10	7	31	—	—	9	—	—	—
21. Die sinking	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
22. Cardboard making ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
23. Paper colouring and enamelling.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
24. Rolling of tea lead ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
25. Making gasholders, boilers, &c., partly manufactured in the open air.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
26. Dressing floors, tin streams, china claypits and quarries (in Cornwall).	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
27. Making fireworks	—	—	—	—	—	—	—	—	28	—	—	—	—	—	—	—	—	—	—	—	—
28. Making pork pies	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27	—	—
29. Warping, winding, or filling as incidental to the weaving of ribbons in workshops.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
30. Beer bottling	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9
31. Washing of bottles for use in the preserving of fruit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL ..	4,314	5,767	2,908	5,476	4,557	1,807	3,184	3,289	2,700	1,245	4,766	2,562	316	1,548	871	1,123	1,424	1,146	993	1,483	4,87
Under Section 54, and Schedule 3, part 4 (1878):																					
32. Bread and biscuit baking	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
33. Dressing floors, tin streams, china claypits and quarries (in Cornwall).	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Under Section 56, and Schedule 3, part 5 (1878):																					
34. Making preserves from fruit.	—	—	13	—	—	27	—	—	59	—	9	—	—	—	—	—	—	—	—	—	—
35. Preserving or curing fish	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
36. Making condensed milk..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
37. Preparing cream, and butter and cheese making.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL ..	—	—	13	—	—	27	—	—	59	—	9	—	—	—	—	—	—	—	—	—	—
Under Section 22 (1895):																					
38. Laundries	22	88	19	74	1	13	10	33	—	—	44	37	—	—	10	—	—	—	—	—	10
Grand Total	4,336	5,855	2,940	5,550	4,558	1,847	3,194	3,322	2,759	1,245	4,819	2,599	316	1,548	881	1,123	1,424	1,146	993	1,483	4,88

* The boundaries of these districts

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Overtime Reports, 1900.

RECEIVED IN EACH DISTRICT.																					Total in 1900.		Total Number of Reports in	
[illegible] (25.)	23. Sheffield. (35.)	24. Huddersfield. (36.)	25. Halifax. (37.)	26. Bradford. (38.)	27. Newcastle. (39.)	28. Manchester. (30.)	29. Oldham. (31.)	30. Rochdale. (32.)	31. Bolton. (33.)	32. Cheshire. (34.)	33. Liverpool. (35.)	34. Blackburn. (36.)	35. Preston. (37.)	36. West Scotland. (38.)	37. South West Scotland. (39.)	38. South East Scotland. (40.)	39. East Scotland. (41.)	40. North Scotland. (42.)	41. North Ireland. (43.)	42. South Ireland. (44.)	Total Number of Places. (45.)	Total Number of Reports. (46.)	1899. (47.)	1898. (48.)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	18	—	17
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20	—	—	3	30	4	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	5	3	15
57	12	—	—	—	—	10	—	9	—	2	—	—	—	39	13	—	—	4	11	—	38	462	495	667
—	—	—	—	—	—	—	—	—	—	—	11	—	—	—	—	—	—	—	4	—	6	36	25	38
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	15
—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	6	42	61	33
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	1	4	3	13
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30	1
98	3,170	1,331	1,571	1,606	5,107	4,318	901	1,384	1,611	857	3,669	2,256	3,156	8,778	1,985	865	1,621	1,500	3,858	1,884	9,861	111,323	119,702	106,570
47	22	31	—	1	173	—	—	—	9	—	39	2	2	188	—	92	—	4	55	32	115	1,154	938	1,305
—	—	—	—	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	16	66	57
—	148	—	3	—	—	31	—	—	—	—	—	—	—	223	—	—	—	—	44	—	124	1,194	1,536	1,186
—	—	—	6	—	—	—	—	—	55	38	—	61	15	—	—	—	—	—	—	—	25	175	248	190
35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	49	107	74
—	—	—	—	—	6	—	—	—	—	—	131	—	—	64	—	22	—	—	30	—	46	498	623	633
—	—	—	—	—	—	16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	22	14	17
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	38	3
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	23	—	4
—	77	—	—	—	9	66	—	23	—	—	52	—	211	—	—	—	—	—	—	—	52	465	381	377
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	4	21	36	20
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
456	3,429	1,362	1,580	1,606	5,295	4,445	906	1,417	1,675	897	3,903	2,319	3,384	9,292	1,998	979	1,621	1,528	4,006	1,916	19,296	115,477	124,316	111,088
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	4
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	4
—	—	—	—	—	—	8	—	—	—	—	—	—	—	14	—	—	—	—	—	—	6	130	94	112
—	—	—	—	—	—	—	—	—	—	—	4	—	—	—	—	—	—	—	—	—	1	4	3	3
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	8	—	—	—	—	4	—	—	14	—	—	—	—	—	—	7	134	97	115
98	6	19	—	—	—	76	3	2	2	65	7	—	—	155	26	—	—	—	31	—	104	857	1,339	1,638
1,914	3,435	1,381	1,580	1,606	5,295	4,529	909	1,419	1,677	962	3,914	2,319	3,384	9,461	2,024	979	1,621	1,528	4,037	1,916	19,407	116,468	125,756	112,846

were readjusted on August 1st, 1900.

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Table 10.—All Reported Accidents, 1900: Age, Sex, Degree of Injury.

INJURY.	Adults (Over 18).				Young Persons (13—18).				Children (11—14).				All Ages.						TOTAL.	
	Males.		Females.		Males.		Females.		Males.		Females.		Males.		Females.		Both Sexes.		1900.	1899.
F.—Factories. W.—Workshops.	F.	W.	F.	W.	F.	W.	F.	W.	F.	W.	F.	W.	F.	W.	F.	W.	F.	W.	F. & W.	F. & W.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
All Reported Accidents	61,760	168	2,666	19	12,237	44	1,838	15	223	-	50	-	74,220	212	4,554	34	78,774	246	79,020	70,276
Accidents required to be notified to Inspectors only ...	43,740	156	814	10	6,032	39	451	10	54	-	10	-	49,826	195	1,275	20	51,101	215	51,316	47,564
These Divisions refer to all Accidents required to be notified to Certifying Surgeons as well as Inspectors.																				
Causing Death ..	915	6	12	1	101	4	5	1	-	-	-	-	1,016	10	17	2	1,033	12	1,045	871
Loss of right hand or arm	51	-	7	-	26	-	3	-	2	-	-	-	79	-	10	-	89	-	89	98
Loss of left hand or arm	56	-	2	-	12	-	4	-	-	-	-	-	68	-	6	-	74	-	74	57
Loss of part of right hand ...	793	-	130	-	381	-	109	-	14	-	2	-	1,188	-	241	-	1,429	-	1,429	1,324
Loss of part of left hand... ...	785	-	73	-	326	-	78	-	8	-	2	-	1,119	-	153	-	1,272	-	1,272	1,117
Loss of any part of leg or foot ...	62	-	1	-	29	-	1	-	1	-	-	-	92	-	2	-	94	-	94	91
Fracture of limbs or bones of trunk	529	-	41	3	190	-	20	3	9	-	-	-	728	-	61		789	6	795	748
Fracture of hand or foot	364	-	43	-	136	-	28	-	5	-	-	-	505	-	71	-	576	-	576	536
Loss of sight of one or both eyes	48	-	7	-	3	-	5	-	-	-	-	-	51	-	12	-	63	-	63	47
Injuries to head and face... ...	1,423	1	171	-	282	-	71	-	12	-	5	-	1,717	1	247	-	1,964	1	1,965	1,802
Burns and scalds	2,817	4	54	2	544	-	37	1	1	-	-	-	3,362	4	91	3	3,453	7	3,460	3,230
Lacerations, contusions, and other injuries not enumerated above.	10,177	1	1,311	3	4,175	1	1,026	-	117	-	31	-	14,469	2	2,368	3	16,837	5	16,842	15,553
Total of Accidents required to be notified to Certifying Surgeons as well as Inspectors.	18,020	12	1,852	9	6,205	5	1,387	5	169	-	40	-	24,394	17	3,279	14	27,673	31	27,704	
Accidents notified to Certifying Surgeons. 1899	14,154	8	1,782	1	5,284	-	1,355	-	170	-	67	-	19,608	8	3,154	1	22,762	9	22,771	
1898	11,611	2	1,498	1	4,786	-	1,114	-	161	-	54	-	16,558	2	2,666	1	19,224	3	19,227	
1897	9,325	4	1,256	-	4,146	-	1,030	-	154	-	70	-	13,625	4	2,356	-	15,981	4	15,985	

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Table 11.—Accidents Reported to Certifying Surgeons, 1900: Degree of Injury, Industry.

Industry.	Causing Death.	Loss of—					Fracture of—		Loss of Sight of One or Both Eyes.	Injuries to Head and Face.	Burns and Scalds.	Lacerations, Contusions, and other Injuries not enumerated in other Columns.	Total.
		Right Hand or Arm.	Left Hand or Arm.	Part of Right Hand.	Part of Left Hand.	Any Part of Leg or Foot.	Limbs or Bones of Trunk.	Hand or Foot.					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
TEXTILE.													
I. Cotton	41	9	4	110	98	2	79	85	8	198	65	2,000	2,639
II. Wool	14	5	9	47	23	1	35	15	—	33	8	440	630
III. Worsted	4	2	2	35	19	1	22	14	—	39	12	350	500
IV. Shoddy	—	—	—	1	3	—	1	1	—	2	4	13	25
V. Flax	4	4	1	41	12	—	10	6	1	30	3	193	316
VI. China Grass	—	—	—	—	—	—	—	—	—	—	—	—	—
VII. Hemp	2	1	—	16	16	1	7	4	—	10	3	85	145
VIII. Jute	3	3	1	27	8	1	10	6	3	22	—	146	230
IX. Horsehair	—	—	—	—	—	—	—	—	—	—	2	—	2
X. Cocoa-nut Fibre	—	—	—	—	1	—	—	—	—	1	—	3	5
XI. Silk	—	—	—	2	4	1	4	3	1	—	3	46	64
XII. Lace	1	—	—	1	4	—	2	1	—	1	1	33	49
XIII. Hosiery	1	—	—	2	1	—	1	1	—	6	—	46	58
XIV. Elastic	—	—	—	—	—	—	—	—	—	—	—	1	1
Total.—Textile	**70**	**24**	**17**	**332**	**134**	**7**	**171**	**130**	**13**	**337**	**101**	**3,375**	**4,717**
NON-TEXTILE.													
XV. Flax Scutching	—	—	—	1	1	—	—	—	—	—	—	5	7
XVI. Gas	26	—	1	2	4	3	9	3	—	13	58	52	171
XVII. Electricity	8	—	—	2	—	—	1	—	—	1	6	9	27
XVIII. India-rubber and Gutta-percha.	4	2	—	5	2	1	1	—	—	4	9	53	80
XIX. Wood	39	4	7	168	230	2	25	30	4	67	22	1,111	1,730
XX. Leather	3	—	1	4	5	2	3	3	—	1	5	51	78
XXI. Ivory, Bone, Shell, and Jet.	1	—	—	—	—	—	—	—	—	—	—	3	4
XXII. Clay, Stone, &c.	47	12	2	66	40	13	22	8	1	14	23	196	442
XXIII. Glass	2	—	—	—	1	—	1	1	—	6	13	54	78
XXIV. Metals, Extraction of ..	53	1	2	3	3	1	11	8	2	30	242	166	522
XXV. Metals, Founding and Conversion of.	131	8	8	106	77	25	74	65	10	293	1,702	1,498	2,997
XXVI. Metals, Galvanising, Finishing, &c.	4	—	3	9	12	—	6	6	—	13	31	169	253
XXVII. Machines, Appliances, Conveyances, Tools :—													
1. Machines, Engines, and Engineering.	106	8	4	206	187	6	109	93	13	327	355	3,120	4,534
2. Ship and Boat-building.	74	1	3	40	45	5	20	21	2	75	69	694	1,047
3. Other	52	1	8	128	94	7	77	47	6	297	244	1,739	2,706
XXVIII. Chemicals, &c.	37	2	1	25	12	1	16	8	—	33	188	227	550
XXIX. Furniture, &c.	8	2	1	42	61	1	5	6	—	11	12	257	406
XXX. Food	31	8	5	59	35	3	17	14	—	30	51	380	633
XXXI. Drink :—													
1. Aerated Waters ..	2	—	—	2	2	—	2	1	7	33	4	140	193
2. Other	39	—	—	9	6	1	10	3	2	19	32	120	240
XXXII. Tobacco, Snuff, and Cigars.	2	—	—	6	2	—	—	1	—	3	2	17	33
XXXIII. Print, Bleach, Dye Works.	23	2	1	23	20	1	29	10	—	17	93	293	513
XXXIV. Clothing	4	—	1	52	50	—	13	13	—	25	11	330	549
XXXV. Jewellery, Plate, Fine Instruments, Fancy Articles, Games.	—	—	1	11	6	—	1	1	—	5	6	95	126
XXXVI. Paper, Printing, Stationery, &c.	24	3	5	71	74	3	30	35	—	39	64	944	1,292
XXXVII. Explosives	1	—	—	4	2	—	2	1	—	10	4	44	68
XXXVIII. Laundries	3	5	—	6	4	—	8	7	1	4	50	156	244
XXXIX. Docks, Wharves, and Quays.	132	—	—	10	7	3	51	23	1	134	19	547	957
XL. Warehouses	30	—	—	4	2	2	18	7	—	46	4	193	306
XLI. Construction and Repairing of Buildings (s. 23, ss. 1[b] and 2[c], 1895 Act).	64	2	—	6	4	1	12	6	—	21	9	74	199
XLII. Buildings defined by s. 23 (ss. 2[b]) of 1895 Act.	3	—	—	—	—	1	—	1	—	1	2	20	28
XLIII. Miscellaneous	22	4	3	77	102	6	21	19	1	56	30	661	1,002
**Total.—Non-Textile .. ..

TABLE 12.—All Reported

Industry. [See note to Table 14]. F.—Factories. W.—Workshops.	FATAL.																		
	Adults.				Young Persons.				Children.				All Ages.				Total.		
	Males.		Females.		Males.		Females.		Males.		Females.		Males.		Females.		Males and Females.		
	F.	W.	F.	W.	F.	W.	F.	W.	F.	W.	F.	W.	F.	W.	F.	W.	F.	W.	F. & W.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
TEXTILE.																			
I. Cotton	30	—	1	—	8	—	2	—	—	—	—	—	38	—	3	—	41	—	41
II. Wool	13	—	—	—	1	—	—	—	—	—	—	—	14	—	—	—	14	—	14
III. Worsted	3	—	—	—	1	—	—	—	—	—	—	—	4	—	—	—	4	—	4
IV. Shoddy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
V. Flax	2	—	2	—	—	—	—	—	—	—	—	—	2	—	2	—	4	—	4
VI. China Grass	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
VII. Hemp	—	—	2	—	—	—	—	—	—	—	—	—	—	—	2	—	2	—	2
VIII. Jute	1	—	—	—	1	—	1	—	—	—	—	—	2	—	1	—	3	—	3
IX. Horsehair	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
X. Cocoa-nut Fibre	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XI. Silk	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XII. Lace	—	—	—	—	1	—	—	—	—	—	—	—	1	—	—	—	1	—	1
XIII. Hosiery	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1
XIV. Elastic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NON-TEXTILE.																			
XV. Flax Scutching	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XVI. Gas	25	—	—	—	1	—	—	—	—	—	—	—	26	—	—	—	26	—	26
XVII. Electricity	8	—	—	—	—	—	—	—	—	—	—	—	8	—	—	—	8	—	8
XVIII. India-rubber and Gutta-percha.	3	—	—	—	—	1	—	—	—	—	—	—	3	1	—	—	3	1	4
XIX. Wood	35	—	—	—	4	—	—	—	—	—	—	—	39	—	—	—	39	—	39
XX. Leather	2	—	—	—	1	—	—	—	—	—	—	—	3	—	—	—	3	—	3
XXI. Ivory, Bone, Shell and Jet.	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1
XXII. Clay, Stone, &c.	37	1	1	—	7	1	—	—	—	—	—	—	44	2	1	—	45	2	47
XXIII. Glass	2	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	2	—	2
XXIV. Metals, Extraction of	48	—	—	—	5	—	—	—	—	—	—	—	53	—	—	—	53	—	53
XXV. Metals, Founding and Conversion of.	122	—	—	—	9	—	—	—	—	—	—	—	131	—	—	—	131	—	131
XXVI. Metals, Galvanising, Finishing, &c.	2	—	—	—	2	—	—	—	—	—	—	—	4	—	—	—	4	—	4
XXVII. Machines, Appliances, Conveyances, Tools:																			
1. Machines, Engines, and Engineering.	166	—	—	—	6	—	—	—	—	—	—	—	166	—	—	—	166	—	106
2. Ship and Boat-building	67	—	—	—	7	—	—	—	—	—	—	—	74	—	—	—	74	—	74
3. Other	46	—	—	—	6	—	—	—	—	—	—	—	52	—	—	—	52	—	52
XXVIII. Chemicals, &c.	36	—	—	—	—	—	1	—	—	—	—	—	36	—	1	—	37	—	37
XXIX. Furniture, &c.	4	1	—	—	2	1	—	—	—	—	—	—	6	2	—	—	6	2	8
XXX. Food	24	—	1	—	6	—	—	—	—	—	—	—	30	—	1	—	31	—	31
XXXI. Drink:																			
1. Aërated Waters	1	—	1	—	—	—	—	—	—	—	—	—	1	—	1	—	2	—	2
2. Other	36	—	—	—	3	—	—	—	—	—	—	—	39	—	—	—	39	—	39
XXXII. Tobacco, Snuff and Cigars.	1	—	—	—	1	—	—	—	—	—	—	—	2	—	—	—	2	—	2
XXXIII. Print, Bleach, Dye Works.	17	—	—	—	6	—	—	—	—	—	—	—	23	—	—	—	23	—	23
XXXIV. Clothing	—	1	—	—	1	1	—	1	—	—	—	—	1	2	—	1	1	3	4
XXXV. Jewellery, Plate, Fine Instruments, Fancy Articles, Games.	—	—	—	—	—	—	—	..	—	—	—	—	—	—	—	—	—	—	—
XXXVI. Paper, Printing, Stationery, &c.	14	—	2	—	7	—	1	—	—	—	—	—	21	—	3	—	24	—	24
XXXVII. Explosives	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1
XXXVIII. Laundries	—	—	1	1	1	—	—	—	—	—	—	—	1	—	1	1	2	1	3
XXXIX. Docks, Wharves and Quays.	125	—	1	—		—	—	—	—	—	—	—	131	—	1	—	132	—	132
XL. Warehouses	28	—	—	—	3	—	—	—	—	—	—	—	36	—	—	—	36	—	30
XLI. Construction and Repairing of Buildings (s. 23, ss. 1[b] and 2[a], 1895 Act).	62	—	—	—	2	—	—	—	—	—	—	—	64	—	—	—	64	—	64
XLII. Buildings defined by s. 23 (ss. 2[b]) of 1895 Act.	3	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	3	—	3
XLIII. Miscellaneous	15	3	—	—	4	—	—	—	—	—	—	—	19	3	—	—	19	3	22
TOTAL, 1900	915	6	12	1	101	4	5	1	—	—	—	—	1,016	19	17	2	1,033	12	1,045
1899	*752*	*5*	*6*	*1*	*99*	—	*6*	—	*2*	—	—	—	*853*	*5*	*12*	*1*	*865*	*6*	*871*
1898	*690*	*2*	*5*	—	*89*	—	*5*	—	*6*	—	—	—	*715*	*2*	*10*	—	*725*	*2*	*727*
1897	*569*	*3*	*9*	—	*69*	—	*4*	—	*3*	—	*1*	—	*641*	*3*	*14*	—	*655*	*3*	*658*

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Accidents 1900: Age, Sex, Industry.

NON-FATAL.

Adults.				Young Persons.				Children.				All Ages.				Total.			Industry.
Males.		Females.		Males.		Females.		Males.		Females.		Males.		Females.		Males and Females.			
F. (21)	W. (22)	F. (23)	W. (24)	F. (25)	W. (26)	F. (27)	W. (28)	F. (29)	W. (30)	F. (31)	W. (32)	F. (33)	W. (34)	F. (35)	W. (36)	F. (37)	W. (38)	F. & W. (39)	{F.—Factories. W.—Workshops. (1)
																			TEXTILE.
1,745	—	732	—	710	—	563	—	121	—	27	—	2,576	—	1,322	—	3,898	—	3,898	Cotton.
352	—	177	—	146	—	102	—	12	—	4	—	516	—	283	—	793	—	793	Wool.
240	—	174	—	144	—	113	—	16	—	9	—	402	—	296	—	698	—	698	Worsted.
28	1	5	—	2	—	—	—	—	—	—	—	30	1	5	—	35	1	36	Shoddy.
127	—	115	—	82	—	68	—	11	—	4	—	220	—	185	—	405	—	405	Flax.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	China Grass.
55	—	64	—	47	—	36	—	—	—	—	—	102	—	100	—	202	—	202	Hemp.
110	—	123	—	55	—	32	—	2	—	—	—	167	—	155	—	322	—	322	Jute.
1	—	1	—	1	—	1	—	—	—	—	—	2	—	2	—	4	—	4	Horsehair.
3	—	1	—	7	—	1	—	—	—	—	—	19	—	2	—	12	—	12	Cocoa-nut Fibre.
28	—	16	—	18	—	16	—	4	—	1	—	50	—	38	—	83	—	83	Silk.
30	—	7	—	23	—	9	—	1	—	—	—	54	—	16	—	70	—	70	Lace.
27	—	15	—	13	—	25	—	—	—	1	—	40	—	41	—	81	—	81	Hosiery.
2	—	—	—	—	—	1	—	—	—	—	—	2	—	1	—	3	—	3	Elastic.
																			NON-TEXTILE.
4	—	1	—	3	—	—	—	—	—	—	—	7	—	1	—	8	—	8	Flax Scutching.
849	1	—	—	19	—	—	—	—	—	—	—	868	1	—	—	868	1	869	Gas.
106	—	1	—	11	—	—	—	—	—	—	—	117	—	1	—	118	—	118	Electricity.
88	—	3	—	27	—	6	—	—	—	—	—	115	—	9	—	124	—	124	India-rubber and Guttapercha.
2,353	3	4	—	401	3	1	—	2	—	—	—	2,756	6	5	—	2,761	6	2,767	Wood.
144	—	—	—	32	—	1	—	1	—	—	—	177	—	1	—	178	—	178	Leather.
2	—	—	—	1	—	—	—	—	—	—	—	3	—	—	—	3	—	3	Ivory, Bone, Shell and Jet.
862	4	39	—	293	1	25	—	1	—	—	—	1,156	5	64	—	1,220	5	1,225	Clay, Stone, &c.
674	1	31	—	146	—	15	—	6	—	—	—	826	1	46	—	872	1	873	Glass.
1,354	—	1	—	92	—	—	—	—	—	—	—	1,446	—	1	—	1,447	—	1,447	Metals, Extraction of.
8,717	1	50	—	1,596	—	27	—	1	—	—	—	10,314	1	77	—	10,391	1	10,392	Metals, Founding and Conversion of
339	1	15	—	116	—	11	—	—	—	—	—	455	1	26	—	481	1	482	Metals, Galvanising, Finishing, &c.
																			Machines, Appliances, Conveyances, Tools:
11,353	75	36	—	2,522	7	30	—	8	—	—	—	13,883	82	75	—	13,958	82	14,040	Machines, Engines, and Engineering.
7,761	—	2	—	1,235	1	—	—	—	—	—	—	8,996	1	2	—	8,998	1	8,999	Ship and Boat-building.
7,247	32	117	—	1,455	4	92	—	2	—	—	—	8,794	36	269	—	9,913	36	8,949	Other.
1,821	2	30	—	189	1	21	—	—	—	—	—	1,819	3	51	—	1,861	3	1,864	Chemicals, &c.
389	11	21	1	126	4	11	—	1	—	—	—	518	15	32	1	548	16	564	Furniture, &c.
824	6	130	1	214	4	72	2	3	—	—	—	1,940	16	262	3	1,848	13	1,261	Food.
																			Drink:
187	1	112	—	71	—	7	—	—	—	—	—	258	1	119	—	377	1	378	Aërated Waters.
584	1	22	—	193	1	3	—	—	—	—	—	777	2	25	—	902	2	804	Other.
27	—	10	—	10	—	6	—	—	—	—	—	37	—	16	—	53	—	53	Tobacco, Snuff and Cigars.
587	—	22	—	190	—	15	—	7	—	1	—	734	—	88	—	822	—	822	Print, Bleach, Dye Works.
328	2	40	11	255	4	65	7	5	—	—	—	588	6	105	18	693	24	717	Clothing.
117	2	23	—	49	—	26	1	—	—	—	—	166	2	49	1	215	3	218	Jewellery, Plate, Fine Instruments Fancy Articles, Games.
1015	1	129	—	636	1	106	—	7	—	1	—	1,658	2	299	—	1,958	2	1,958	Paper, Printing, Stationery, &c.
158	—	12	—	33	—	8	—	—	—	1	—	191	—	21	—	212	—	212	Explosives.
56	—	153	3	15	1	79	1	1	—	1	—	72	1	224	4	296	5	301	Laundries.
4,338	—	6	—	92	—	4	—	—	—	—	—	4,430	—	10	—	4,440	—	4,440	Docks, Wharves and Quays.
3,479	—	10	—	227	—	—	—	2	—	—	—	3,706	—	10	—	3,716	—	3,716	Warehouses.
915	—	2	—	55	—	—	—	—	—	—	—	970	—	2	—	972	—	972	Construction and Repairing of Buildings (s. 23. ss. 1ᵇ and 2ᵃ, 1895 Act).
308	—	22	—	55	—	4	—	—	—	—	—	363	—	26	—	389	—	389	Buildings defined by s. 23. (ss. 2ᵇ) of 1895 Act.
1,311	17	180	2	529	8	171	3	2	—	—	—	1,842	25	351	5	2,193	36	2,229	Miscellaneous.
69,845	162	2,654	18	12,136	40	1,833	14	223	—	56	—	73,204	202	4,537	32	77,741	234	77,975	TOTAL, 1900.
54,655	*104*	*2,362*	*8*	*10,700*	*30*	*1,706*	*20*	*227*	—	*87*	—	*65,582*	*134*	*4,156*	*18*	*69,737*	*152*	*69,889*	*1899.*
43,213	*73*	*1,993*	*15*	*9,091*	*43*	*1,400*	*6*	*218*	—	*83*	—	*53,222*	*116*	*3,476*	*21*	*56,698*	*137*	*56,835*	*1898.*
29,404	*41*	*1,654*	*5*	*7,218*	*27*	*1,209*	*4*	*186*	—	*76*	—	*38,808*	*68*	*2,931*	*9*	*39,739*	*77*	*39,816*	*1897.*

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TABLE 13.—All Reported

Industry. (For fuller definitions, *see* preceding Table. *See* note to Table 14.)	Movement of Machinery: Machinery moved by Mechanical Power.* Hoists. Fatal.	Hoists. Non-Fatal.	Shuttles. Fatal.	Shuttles. Non-Fatal.	Cranes and other Lifting Tackle. Fatal.	Cranes and other Lifting Tackle. Non-Fatal.	Grindstones. Fatal.	Grindstones. Non-Fatal.	Circular Saws. Fatal.	Circular Saws. Non-Fatal.	Other. Fatal.	Other. Non-Fatal.	Machinery NOT moved by Mechanical Power. Fatal.*		Non-Fatal.		Hot Liquid or Molten Metal or other Substance in Vat or Pan.* Fatal.		Non-Fatal.	
F.—Factories. W.—Workshops.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	W.	F.	W.	F.	W.	F.	W.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
TEXTILE.																				
Cotton	6	71	—	161	2	5	—	7	—	12	15	2,414	—	—	12	—	—	—	10	—
Wool	—	15	—	24	—	3	—	3	—	6	6	556	1	—	3	—	—	—	4	—
Worsted	—	32	—	14	—	6	—	1	—	2	1	439	—	—	5	—	—	—	5	—
Shoddy	—	—	—	—	—	—	—	—	—	—	—	23	—	—	1	—	—	—	—	—
Flax	1	12	—	19	—	2	—	2	1	7	—	261	—	—	—	—	1	—	2	—
China Grass	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hemp	—	—	—	1	—	3	—	—	—	—	2	136	—	—	2	—	—	—	1	—
Jute	—	3	—	4	—	1	—	—	—	—	2	218	—	—	1	—	—	—	—	—
Horsehair	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—
Cocoa-nut Fibre	—	—	—	1	—	—	—	—	—	—	—	4	—	—	—	—	—	—	—	—
Silk	—	1	—	1	—	—	—	—	—	2	—	57	—	—	2	—	—	—	1	—
Lace	—	—	—	—	—	—	—	1	—	—	1	47	—	—	2	—	—	—	—	—
Hosiery	—	3	—	—	—	—	—	—	—	—	—	53	—	—	—	—	—	—	—	—
Elastic	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—
NON-TEXTILE.																				
Flax Scutching	—	—	—	—	—	—	—	—	—	—	—	7	—	—	—	—	—	—	—	—
Gas	1	12	—	—	2	7	—	1	—	3	2	61	—	—	16	—	—	—	3	—
Electricity	—	—	—	—	1	—	—	—	—	—	1	18	—	—	2	—	—	—	—	—
India-rubber, &c.	—	2	—	—	—	—	—	1	—	—	—	65	—	—	3	—	—	—	1	—
Wood	1	4	—	—	1	21	—	15	3	997	16	623	—	—	29	2	—	—	3	—
Leather	1	6	—	—	—	1	—	1	—	1	—	61	—	—	—	—	—	—	3	—
Ivory, Bone, &c.	—	—	—	—	—	—	—	—	—	3	1	—	—	—	—	—	—	—	—	—
Clay, Stone, &c.	2	16	—	—	—	13	—	3	—	3	26	244	1	—	45	—	—	—	6	—
Glass	—	3	—	—	—	7	—	3	—	19	1	66	—	—	4	—	—	—	—	—
Metals, Extraction of	4	30	—	—	1	35	—	3	—	5	15	150	1	—	32	—	—	—	24	—
Metals, Founding, &c.	4	52	—	—	14	374	1	46	—	20	43	1,798	1	—	333	—	—	—	43	—
Metals, Galvanising, &c.	—	—	—	—	—	3	—	3	—	7	—	204	—	—	6	1	2	—	7	—
Machines, Appliances, &c.:																				
1. Machines, &c.	—	24	—	—	17	312	—	199	—	146	20	3,371	4	—	239	2	2	—	25	—
2. Ship-building	—	16	—	—	7	136	—	24	—	52	1	675	—	—	97	—	—	—	4	—
3. Other	1	19	—	—	1	67	1	91	—	136	17	2,110	2	—	124	4	—	—	23	—
Chemicals, &c.	—	24	—	—	1	25	—	5	—	16	8	233	—	—	37	—	4	—	71	1
Furniture, &c.	—	2	—	—	—	2	—	5	1	33	3	224	—	—	15	4	—	—	—	—
Food	6	32	—	—	1	30	—	4	—	7	9	433	—	—	27	4	1	—	21	—
Drink:																				
1. Aerated Waters	—	4	—	—	—	1	—	—	—	1	1	20	—	—	3	1	—	—	1	—
2. Other	3	23	—	—	—	3	—	1	—	2	7	73	—	—	15	—	1	—	16	—
Tobacco, &c.	—	3	—	—	—	—	—	1	—	1	—	24	1	—	—	—	—	—	—	—
Print, Bleach, Dye Works.	1	14	—	—	1	5	—	3	—	3	5	378	—	—	12	—	4	—	41	—
Clothing	—	16	—	—	—	—	—	1	—	3	1	503	—	—	22	1	—	—	3	—
Jewellery, &c.	—	2	—	—	—	—	—	1	—	19	—	99	—	—	15	—	—	—	—	—
Paper, Printing, &c.	1	46	—	—	—	7	—	2	1	13	11	1,145	—	—	85	—	—	—	6	—
Explosives	—	1	—	—	—	—	—	—	—	1	—	55	—	—	2	—	—	—	1	—
Laundries	1	—	—	—	—	—	—	—	—	—	1	225	—	—	3	2	—	—	1	—
Docks, Wharves, &c.	—	40	—	—	19	619	—	1	—	3	18	145	1	—	66	—	—	—	1	—
Warehouses	3	33	—	—	3	141	—	—	—	—	5	88	—	—	77	—	—	—	1	—
Construction, &c., of Buildings (s. 23, ss. 1[b] and 2[a], 1895 Act).	—	4	—	—	3	85	—	—	—	—	3	40	—	—	14	—	—	—	—	—
Buildings defined by s. 23 (ss. 2[b]) of 1895 Act.	—	15	—	—	—	—	—	—	—	—	—	6	—	—	—	—	—	—	—	—
Miscellaneous	—	23	—	—	3	23	—	11	—	116	7	763	—	—	162	9	2	1	3	—
TOTAL, 1900	41	597	—	165	82	1,914	2	449	11	1,686	237	18,224	12	—	1,629	30	17	1	336	1
1899	*27*	*315*	*1*	*161*	*60*	*1,479*	*4*	*423*	*9*	*1,260*	*194*	*16,663*	*6*	*1*	*1,346*	*27*	*26*	—	*1,004*	—
1898	*25*	*284*	*2*	*194*	*63*	*987*	*5*	*388*	*5*	*1,139*	*189*	*13,565*	*6*	—	*1,354*	*14*	*27*	—	*906*	1

* Reported to Certifying Factory

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Accidents 1900: Causation, Industry.

Explosion.*				Electric Shock.				Escape of Gas, Steam, or Metal.*				Falls (other than those included in preceding Columns).				Other Causes.				Total.	
Fatal.		Non-Fatal.		Fatal.*		Non-Fatal.		Fatal.		Non-Fatal.		Fatal.*		Non-Fatal.		Fatal.*		Non-Fatal.		Fatal.	Non-Fatal.
F. (22)	W. (23)	F. (24)	W. (25)	F. (26)	W. (27)	F. (28)	W. (29)	F. (30)	W. (31)	F. (32)	W. (33)	F. (34)	W. (35)	F. (36)	W. (37)	F. (38)	W. (39)	F. (40)	W. (41)	F. & W. (42)	F. & W. (43)
1	—	6	—	—	—	—	—	—	—	22	—	3	—	413	—	9	—	320	—	41	3,898
—	—	3	—	—	—	—	—	—	—	2	—	4	—	57	—	3	—	112	—	14	793
—	—	1	—	—	—	—	—	—	—	5	—	2	—	72	—	1	—	116	—	4	698
—	—	2	—	—	—	—	—	—	—	—	—	—	—	5	—	—	—	4	1	—	36
—	—	1	—	—	—	—	—	1	—	—	—	—	—	30	—	—	—	69	—	4	405
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	2	—	—	—	14	—	—	—	43	—	2	202
—	—	—	—	—	—	—	—	—	—	1	—	1	—	33	—	—	—	61	—	3	322
—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	4
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	—	—	12
—	—	1	—	—	—	—	—	—	—	1	—	—	—	7	—	—	—	10	—	—	83
—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	—	—	—	16	—	1	70
—	—	1	—	—	—	—	—	—	—	—	—	1	—	13	—	—	—	11	—	1	81
—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	3
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	8
2	—	16	—	—	—	—	—	2	—	43	—	3	—	298	—	9	—	499	1	26	869
—	—	1	—	1	—	3	—	2	—	5	—	1	—	29	—	2	—	65	—	8	118
1	—	5	—	—	—	—	—	—	—	2	—	—	1	17	—	2	—	28	—	4	124
—	—	4	—	—	—	—	—	—	—	13	—	9	—	278	1	16	—	784	3	39	2,767
—	—	—	—	—	—	—	—	—	—	2	—	2	—	33	—	—	—	70	—	3	178
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	3
—	—	6	—	—	—	—	—	1	—	19	—	5	—	236	1	16	2	544	4	47	1,225
—	—	4	—	—	—	—	—	—	—	13	—	1	—	118	—	—	—	674	1	2	873
1	—	47	—	—	—	—	—	6	—	185	—	9	—	213	—	16	—	733	—	53	1,447
7	—	162	—	2	—	4	—	3	—	1,455	—	18	—	1,243	—	33	—	4,945	1	131	10,392
—	—	5	—	—	—	—	—	—	—	20	—	—	—	46	—	2	—	180	—	4	482
3	—	68	1	—	—	8	—	1	—	271	1	34	—	1,636	22	25	—	7,549	56	106	14,040
—	—	34	—	—	—	6	—	—	—	26	—	44	—	1,850	1	22	—	6,672	—	74	8,999
—	—	51	—	—	—	12	—	5	—	146	—	7	—	914	6	18	—	5,265	26	52	8,949
4	—	43	—	—	—	1	—	1	—	95	—	11	—	353	—	5	—	958	2	37	1,864
1	—	4	1	—	—	—	—	—	—	12	—	1	2	36	4	—	—	100	7	8	564
—	—	11	1	—	—	—	—	—	—	22	—	7	—	215	8	7	—	405	—	31	1,261
1	—	159	—	—	—	—	—	—	—	5	—	—	—	32	—	—	—	151	—	2	378
—	—	66	—	—	—	—	—	3	—	17	—	16	—	197	2	9	—	389	—	39	804
—	—	2	—	—	—	—	—	—	—	—	—	1	—	4	—	—	—	18	—	2	53
1	—	13	—	—	—	—	—	—	—	24	—	6	—	99	—	5	—	222	—	23	822
—	2	3	14	—	—	—	—	—	—	2	—	—	1	38	4	—	—	102	5	4	717
—	—	1	—	—	—	—	—	—	—	5	—	—	—	15	1	—	—	59	2	—	218
—	—	15	—	—	—	—	—	2	—	24	—	4	—	162	1	5	—	441	1	24	1,958
—	—	5	—	—	—	—	—	—	—	4	—	—	—	33	—	1	—	110	—	1	212
—	—	1	—	—	—	—	—	—	—	4	—	—	1	23	1	—	—	29	2	3	301
1	—	8	—	—	—	1	—	—	—	8	—	55	—	1,046	—	43	—	2,582	—	132	4,440
—	—	1	—	—	—	—	—	—	—	2	—	8	—	957	—	6	—	2,408	—	30	3,718
—	—	13	—	—	—	—	—	—	—	7	—	37	—	361	—	16	—	522	—	64	972
—	—	1	—	—	—	—	—	—	—	1	—	2	—	122	—	1	—	242	—	3	389
1	—	14	—	—	—	1	—	—	—	19	—	2	1	228	3	4	1	822	18	22	2,223
24	2	784	17	3	—	36	—	27	—	2,485	1	304	6	11,343	55	273	3	38,093	130	1,045	77,975
54	—	*617*	*2*	*2*	—	*7*	—	*13*	—	*955*	*1*	*289*	*4*	*10,551*	*33*	*174*	*1*	*35,936*	*99*	*871*	*69,330*
18	—	*560*	—	*2*	—	*2*	—	*12*	—	*546*	—	*233*	*2*	*7,851*	*26*	*138*	—	*28,992*	*96*	*727*	*56,836*

Surgeons as well as to H.M. Inspectors.

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TABLE 14.—Accidents Reported to (1) Certifying Surgeons (as well as Inspectors), and (2) Inspectors only, 1898–9–1900.

Industry.	Accidents Reported to Certifying Surgeons and also to Inspectors.						Minor Accidents Reported to Inspectors only.		
	FATAL.			NON-FATAL.			NON-FATAL.		
	1900.	1899.	1898.	1900.	1899.	1898.	1900.	1899.	1898.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
TEXTILE.									
I. Cotton	41	24	35	2,648	2,583	2,319	1,250	1,140	861
II. Wool	14	12	11	616	527	434	177	169	131
III. Worsted	4	9	7	505	581	499	193	207	135
IV. Shoddy	—	—	—	25	7	4	11	7	2
V. Flax	4	—	1	306	180	188	99	52	34
VI. China Grass	—	—	—	—	—	—	—	—	—
VII. Hemp	2	2	—	142	72	27	59	30	32
VIII. Jute	3	1	2	227	231	194	95	74	68
IX. Horsehair	—	—	—	2	3	2	2	—	3
X. Cocoanut-fibre	—	—	1	5	5	1	7	5	6
XI. Silk	—	2	—	64	68	50	19	17	11
XII. Lace	1	1	1	48	44	35	22	12	5
XIII. Hosiery	1	1	—	57	37	24	24	22	13
XIV. Elastic	—	—	1	1	4	9	2	4	1
Total.—Textile	70	52	59	4,647	4,332	3,786	1,960	1,719	1,302
NON-TEXTILE.									
XV. Flax Scutching	—	—	—	7	7	5	1	1	1
XVI. Gas	26	20	16	145	122	118	724	696	641
XVII. Electricity	8	4	1	19	18	34	99	108	108
XVIII. India-rubber	4	1	1	76	65	66	48	73	64
XIX. Wood	39	27	16	1,670	1,215	1,004	1,097	602	481
XX. Leather	3	5	6	75	89	103	103	117	92
XXI. Ivory, Bone, Shell, and Jet	1	1	—	3	19	26	—	16	13
XXII. Clay, Stone, &c.	47	31	27	395	281	139	830	610	295
XXIII. Glass	2	2	13	76	78	54	797	907	790
XXIV. Metals, Extraction of	53	52	33	460	228	242	978	522	512
XXV. Metals, Founding and Conversion of.	131	74	75	3,306	2,209	1,821	6,526	4,668	3,893
XXVI. Metals, Galvanising, Finishing, &c.	4	5	2	249	290	279	233	277	245
XXVII. Machines, Appliances, Conveyances, Tools:—									
1. Machines, Engines, and Engineering.	106	127	88	4,428	4,661	3,858	9,612	11,292	8,000
2. Ship and Boat-building	74	108	70	973	787	803	8,026	8,495	7,039
3. Other Appliances, &c.	52	35	31	2,648	2,208	2,005	6,301	5,262	4,296
XXVIII. Chemicals, &c.	37	36	31	513	466	412	1,251	1,259	1,063
XXIX. Furniture, &c.	8	4	3	393	265	248	106	100	122
XXX. Food	31	24	22	602	521	409	659	488	416
XXXI. Drink:—									
1. Aërated Waters	2	3	—	191	173	153	137	108	87
2. Other	39	17	14	261	106	92	663	537	348
XXXII. Tobacco, Snuff, and Cigars	2	1	1	31	27	18	22	24	37
XXXIII. Print, Bleach, Dye Works	23	19	21	489	488	383	333	316	217
XXXIV. Clothing	4	3	4	545	432	335	172	127	128
XXXV. Jewellery, Plate, Fine Instruments, Fancy Articles, Games.	—	—	1	126	96	77	92	39	51
XXXVI. Paper, Printing, Stationery, &c.	24	30	25	1,268	1,136	950	698	659	561
XXXVII. Explosives	1	1	1	67	26	34	145	72	42
XXXVIII. Laundries	3	1	—	241	195	159	60	47	58
XXXIX. Docks, Wharves, and Quays	132	115	89	825	602	305	3,615	3,989	3,765
XL. Warehouses	30	21	16	276	206	92	3,442	3,307	2,415
XLI. Construction and Repairing of Buildings (s. 23, ss. 1[b] and 2[a], 1895 Act).	64	48	42	135	7	27	837	359	425
XLII. Buildings defined by s. 23 (ss. 2[b]) of 1895 Act.	3	5	3	25	15	1	364	321	163
XLIII. Miscellaneous	22	19	16	630	470	462	1,243	872	665
Total.—Non-Textile	975	819	668	22,612	17,568	14,714	49,356	46,270	37,033
GRAND TOTAL	1,045	871	727	26,659	21,900	18,500	51,316	47,989	38,335

NOTE.—In the statistics of accidents in 1900, industry was classified according to the exact branch of work, instead of the principal manufacture. This fact affects comparison with the previous year's figures, notably in the industries Wood, Extraction and Founding, &c., of Metals, Machines, &c., and Ship and Boat-building.

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Table 15.—All Reported Accidents, 1900: Degree of Injury, District.

District.	Accidents required to be notified to Certifying Surgeons as well as Inspectors.													Accidents required to be notified to Inspectors only.	All reported Accidents.
	Causing Death.	Loss of					Fracture of		Loss of sight of one or both eyes.	Injuries to head and face.	Burns and scalds.	Lacerations, contusions, and other injuries not enumerated in other columns.	Total.		
		right hand or arm.	left hand or arm.	part of right hand.	part of left hand.	any part of leg or foot.	limbs or bones of trunk.	hand or foot.							
(1).	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)	(11.)	(12.)	(13.)	(14.)	(15.)	(16.)
.. North London*	15	1	1	27	20	1	13	8	—	42	23	343	494	1,561	2,055
2. South London	33	3	3	42	28	3	28	11	—	143	88	556	933	2,607	3,545
3. West London*	17	2	2	19	21	—	6	7	1	19	31	178	303	1,142	1,445
3a. Works assigned to Miss Deane	2	—	—	1	—	—	1	1	1	—	4	17	27	6	33
4. East London*	36	1	2	36	31	3	21	13	1	53	51	436	684	2,420	3,104
5. Kent	20	3	2	18	18	2	10	14	1	30	35	275	428	1,557	1,985
6. Southampton	13	—	—	5	11	1	2	1	—	20	10	125	188	1,032	1,220
7. Plymouth	19	1	—	10	10	—	10	6	—	22	12	178	268	1,204	1,472
8. Bristol..	19	4	4	34	43	1	16	8	—	40	46	439	654	1,164	1,818
9. Northampton	4	—	—	17	19	—	4	5	—	4	10	106	169	185	354
10. Norwich	6	1	2	12	15	—	7	3	1	6	21	237	311	617	928
SOUTHERN DIVISION ..	**184**	**16**	**16**	**221**	**216**	**11**	**118**	**77**	**5**	**379**	**331**	**2,890**	**4,464**	**13,495**	**17,959**
11. Birmingham	31	4	2	69	68	5	22	20	—	67	104	793	1,185	1,464	2,649
12. Worcester	4	—	1	9	15	—	5	—	—	7	16	106	163	166	329
13. Wolverhampton	24	1	5	33	36	1	11	15	1	41	260	398	816	1,542	2,358
14. South Staffordshire	20	1	3	18	13	2	8	11	—	28	159	306	569	950	1,519
15. North Staffordshire	14	1	1	17	16	1	6	6	2	17	38	139	258	651	909
16. Leicester	6	1	1	33	33	2	4	5	1	22	25	302	435	344	779
17. Nottingham	7	—	1	24	14	—	7	5	—	10	21	182	271	317	588
18. Derby..	16	—	1	15	15	2	9	12	1	37	128	292	528	1,171	1,699
19. Lincoln	9	1	2	12	12	2	4	—	1	6	21	128	198	272	470
20. South Wales and Monmouthshire.	57	2	4	42	38	9	34	18	—	62	164	433	863	1,873	2,736
21. North Wales	6	—	—	12	10	1	2	3	—	3	15	41	93	262	355
MIDLAND DIVISION ..	**194**	**11**	**21**	**284**	**270**	**25**	**112**	**95**	**6**	**309**	**941**	**3,120**	**5,379**	**8,912**	**14,291**
22. Leeds	45	1	3	59	81	5	44	20	7	64	98	643	1,070	2,169	3,239
23. Sheffield	30	4	2	44	27	7	26	21	4	79	124	510	878	1,618	2,496
24. Huddersfield	9	1	2	31	25	—	16	20	—	13	39	335	491	296	787
25. Halifax	14	2	1	17	17	—	17	13	1	22	27	205	336	237	573
26. Bradford	15	2	1	50	40	3	43	18	1	52	54	413	692	381	1,073
27. Newcastle	126	2	1	89	86	11	56	40	4	138	326	1,110	1,988	5,653	7,641
NORTH EASTERN DIVISION.	**239**	**12**	**10**	**290**	**276**	**26**	**202**	**132**	**17**	**368**	**667**	**3,216**	**5,455**	**10,354**	**15,809**
28. Manchester	55	2	3	53	39	5	40	28	3	146	234	1,094	1,702	2,939	4,641
29. Oldham	24	2	1	50	36	—	38	27	1	93	145	764	1,181	1,087	2,268
30. Rochdale	14	4	3	45	35	1	23	19	2	64	108	610	928	651	1,579
31. Bolton	15	3	—	28	25	3	25	25	2	65	105	750	1,046	992	2,038
32. Cheshire	10	2	2	19	25	2	8	13	1	51	73	462	668	1,106	1,774
33. Liverpool	86	4	—	53	29	5	67	28	2	132	115	735	1,256	3,440	4,696
34. Blackburn	16	1	1	31	30	—	13	19	2	46	44	322	525	284	809
35. Preston	27	3	2	28	27	2	20	8	1	82	134	532	866	1,776	2,642
NORTH WESTERN DIVISION.	**247**	**21**	**12**	**307**	**246**	**18**	**234**	**167**	**14**	**679**	**958**	**5,269**	**8,172**	**12,275**	**20,447**
36. West Scotland	112	8	7	147	118	8	62	55	14	112	428	1,197	2,268	4,490	6,758
37. South West Scotland	8	1	1	22	20	1	6	12	2	14	21	99	207	202	409
38. South East Scotland	15	5	1	23	20	2	12	3	—	20	37	190	328	221	549
39. East Scotland	15	6	2	47	32	2	25	13	3	40	19	346	550	238	788
40. North Scotland..	10	2	2	18	14	—	7	4	—	7	22	129	215	207	422
41. North Ireland	10	2	2	46	41	1	16	6	2	39	9	231	395	573	968
42. South Ireland	11	5	—	24	19	—	1	12	—	17	27	155	271	349	620
SCOTLAND AND IRELAND	**181**	**29**	**15**	**327**	**264**	**14**	**129**	**165**	**21**	**239**	**563**	**2,347**	**4,234**	**6,280**	**10,514**
UNITED KINGDOM	**1,045**	**89**	**74**	**1,429**	**1,272**	**94**	**795**	**576**	**63**	**1,965**	**3,460**	**16,642**	**27,704**	**51,316**	**79,020**

* Within London the new boundaries of these Districts were not made effective until August 1st, 1900. The accidents in the two periods of 1900 therefore refer to different areas for each District.

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Table 16.—All Reported Accidents

District.	1. Cotton.	2 Wool.	3. Worsted.	4. Shoddy.	5. Flax.	6. China Grass.	7. Hemp.	8. Jute.	9. Horsehair.	10. Cocoanut Fibre.	11. Silk.	12. Lace.	13. Hosiery.	14. Elastic.	15. Flax Scutching.	16. Gas.	17. Electricity.	18. India Rubber and Gutta-Percha.	19. Wood.	20. Leather.	21. Ivory, Bone, Shell, and Jet.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1. North London*	—	—	—	—	1	—	—	—	—	—	3	—	—	—	—	34	5	3	78	1	—
2. South London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	81	70	4	101	28	—
3. West London*	—	4	—	—	—	—	—	—	—	1	—	—	—	—	—	66	3	1	57	1	—
3a. Works assigned to Miss Deane.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4. East London*	1	—	—	—	—	—	15	6	—	1	3	—	—	—	—	206	5	44	99	4	—
5. Kent	—	—	—	—	—	—	12	—	—	—	—	—	—	—	—	4	—	—	51	5	—
6. Southampton	—	—	—	—	1	—	2	—	—	—	—	—	—	—	—	9	3	—	59	—	—
7. Plymouth	1	4	1	—	—	—	19	—	—	—	—	1	—	—	—	13	—	—	73	6	—
8. Bristol	45	50	2	—	2	—	4	1	1	—	—	4	1	1	—	22	—	—	89	8	—
9. Northampton	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	4	—
10. Norwich	—	—	—	—	—	—	—	—	—	9	6	—	2	—	—	1	2	—	69	1	—
SOUTHERN DIVISION	**47**	**58**	**3**	**—**	**4**	**—**	**52**	**7**	**1**	**11**	**12**	**5**	**3**	**1**	**—**	**438**	**88**	**52**	**685**	**58**	**—**
11. Birmingham	—	—	—	—	—	—	—	—	—	—	4	—	1	—	—	33	1	10	100	2	—
12. Worcester	2	1	65	—	—	—	—	—	—	—	—	—	—	—	—	5	—	—	9	—	—
13. Wolverhampton	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	9	—	—	91	—	—
14. South Staffordshire	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	1	—	42	4	—
15. North Staffordshire	3	—	—	—	—	—	—	—	—	—	8	1	—	—	—	10	1	—	35	—	—
16. Leicester	3	9	13	—	—	—	—	—	—	—	—	—	57	2	—	16	—	1	42	3	—
17. Nottingham	21	2	2	—	—	—	—	—	—	—	—	31	8	—	—	2	—	3	48	3	—
18. Derby	78	—	—	—	—	—	—	—	—	—	—	20	4	—	—	15	—	—	33	—	—
19. Lincoln	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1	—	—	70	1	—
20. South Wales and Monmouthshire.	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	7	3	—	87	2	—
21. North Wales	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	23	3	—
MIDLAND DIVISION	**107**	**19**	**81**	**—**	**—**	**—**	**2**	**—**	**—**	**—**	**12**	**52**	**70**	**2**	**—**	**198**	**6**	**14**	**580**	**18**	**—**
22. Leeds	—	118	21	1	6	—	8	—	—	—	—	—	—	—	—	18	1	—	156	34	—
23. Sheffield	—	—	1	—	2	—	—	—	—	—	—	—	—	—	—	47	1	—	44	—	4
24. Huddersfield	85	289	39	27	—	—	—	—	—	—	2	—	—	—	—	3	—	—	8	—	—
25. Halifax	63	31	115	1	1	—	1	—	—	—	12	—	—	—	—	20	3	—	16	—	—
26. Bradford	25	93	373	5	—	—	—	—	—	—	22	—	—	—	—	26	1	—	45	3	—
27. Newcastle	—	—	8	—	2	—	15	—	—	—	—	—	—	—	—	31	1	—	187	4	—
NORTH EASTERN DIVISION.	**173**	**531**	**557**	**34**	**11**	**—**	**24**	**—**	**—**	**—**	**36**	**—**	**—**	**—**	**—**	**145**	**7**	**—**	**456**	**41**	**4**
28. Manchester	245	2	—	—	1	—	3	—	—	—	—	2	—	—	—	71	3	28	155	12	—
29. Oldham	959	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	1	—	37	—	—
30. Rochdale	563	80	10	2	—	—	—	—	—	1	4	—	—	—	—	4	2	—	44	4	—
31. Bolton	740	—	—	—	—	—	—	—	—	—	1	—	3	—	—	3	—	2	52	—	—
32. Cheshire	305	4	1	—	—	—	3	—	—	—	15	—	—	—	—	15	3	3	52	2	—
33. Liverpool	1	—	—	—	—	—	6	4	—	—	—	—	—	—	—	39	2	3	113	20	—
34. Blackburn	447	—	2	—	—	—	1	—	—	—	—	—	—	—	—	—	1	—	45	1	—
35. Preston	244	7	—	—	3	—	—	10	—	—	2	—	—	—	—	2	5	—	73	7	—
NORTH WESTERN DIVISION.	**3,504**	**93**	**13**	**2**	**4**	**—**	**13**	**14**	**—**	**1**	**23**	**2**	**3**	**—**	**—**	**135**	**17**	**36**	**571**	**46**	**—**
36. West Scotland	83	—	15	—	19	—	28	4	3	—	—	5	—	—	—	61	4	16	293	14	—
37. South West Scotland	3	17	13	—	8	—	3	—	—	—	—	7	1	—	—	2	—	—	25	—	—
38. South East Scotland	7	53	19	—	2	—	6	—	—	—	—	—	2	—	—	—	—	10	25	1	—
39. East Scotland	7	15	—	—	139	—	12	284	—	—	—	—	—	—	—	—	—	—	29	1	—
40. North Scotland	2	8	1	—	11	—	—	5	—	—	—	—	1	—	—	1	1	—	50	—	—
41. North Ireland	2	7	—	—	204	—	64	8	—	—	—	—	1	—	8	—	—	—	29	—	—
42. South Ireland	4	6	—	—	7	—	—	3	—	—	—	—	1	—	—	5	3	—	63	2	—
SCOTLAND AND IRELAND DIVISION	**108**	**106**	**48**	**—**	**390**	**—**	**113**	**304**	**3**	**—**	**—**	**12**	**6**	**—**	**8**	**69**	**8**	**26**	**514**	**18**	**—**
UNITED KINGDOM	**3,939**	**807**	**702**	**36**	**409**	**—**	**204**	**325**	**4**	**12**	**83**	**71**	**82**	**3**	**8**	**395**	**126**	**128**	**2,806**	**181**	**4**

* Within London the new boundaries of these Districts were not made effective until August 1st, 1900.

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1900: Industry, District.

22. Clay, Stone, &c.	23. Glass.	24. Metals, Extraction of.	25. Metals, Founding and Conversion of.	26. Metals, Galvanising, Finishing, &c.	27. Machines, Appliances, Conveyances, Tools.			28. Chemicals, &c.	29. Furniture, &c.	30. Food.	31. Drink.		32. Tobacco, Snuff, and Cigars.	33. Print, Bleach, and Dye Works.	34. Clothing.	35. Jewellery, Plate, Fine Instruments, Fancy Articles, Games.	36. Paper, Printing, Stationery, &c.	37. Explosives.	38. Laundries.	39. Docks, Wharves, and Quays.	40. Warehouses.	41. Construction and Repairing of Buildings (s. 23, ss. 1° and 2° 1895 Act).	42. Buildings defined by s. 23 (ss. 2°) of 1895 Act.	43. Miscellaneous.	TOTAL.
					27¹. Machines, Engines, and Engineering.	27². Ship and Boat Building.	27³. Other.				31¹. Aërated Waters.	31². Other.													
(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)
2	2	—	10	4	200	2	222	3	20	36	60	13	3	1	14	20	197	—	16	9	810	43	171	72	2,955
38	—	1	267	19	450	8	1,324	59	16	129	89	44	—	2	12	23	80	96	59	243	13	13	36	250	3,545
13	—	1	27	8	396	1	72	6	14	47	38	19	1	1	10	13	79	—	15	8	310	84	81	68	1,445
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33	—	—	—	—	—	33
13	1	1	32	7	563	32	213	157	6	132	4	15	1	—	6	3	30	13	4	1,128	237	2	4	114	3,164
159	—	—	15	—	452	610	279	32	3	9	2	4	—	—	1	4	118	12	10	3	15	139	—	16	1,995
7	—	—	8	1	258	510	129	1	2	8	6	4	—	—	5	—	18	4	6	108	6	38	6	21	1,220
66	—	—	14	8	205	696	124	14	4	13	6	10	—	—	1	1	32	—	3	41	19	55	3	39	1,472
26	4	2	157	26	349	6	362	54	27	59	12	39	21	2	43	2	133	—	7	85	101	9	2	60	1,818
28	—	13	7	—	128	—	19	—	4	—	—	8	—	2	108	—	5	—	3	—	15	—	—	1	354
27	—	—	38	—	286	7	117	35	2	38	10	19	—	—	25	1	36	1	6	41	62	—	1	86	928
409	**7**	**18**	**565**	**73**	**3,287**	**1,872**	**2,861**	**361**	**98**	**471**	**227**	**175**	**26**	**8**	**225**	**67**	**728**	**126**	**162**	**1,666**	**1,588**	**383**	**394**	**727**	**17,959**
42	19	3	289	19	433	4	737	26	112	42	6	26	—	2	10	44	87	21	7	—	272	17	11	269	2,649
3	—	1	53	1	35	1	73	1	19	4	4	2	—	—	1	1	8	—	1	—	14	—	—	25	329
105	5	84	1,011	97	311	2	354	26	29	6	2	9	—	—	6	1	9	—	1	6	92	5	1	94	2,358
42	6	6	513	26	124	1	426	143	2	6	1	7	—	—	10	2	8	49	1	3	30	4	2	51	1,519
102	—	86	43	2	126	—	48	1	1	2	15	260	—	1	6	—	13	—	1	—	6	7	—	31	669
23	—	3	46	—	152	—	40	1	—	41	—	5	—	11	200	2	31	—	3	—	49	6	5	15	779
7	—	5	29	2	147	1	82	15	24	6	4	16	2	6	10	2	27	—	3	—	47	4	—	29	588
28	—	152	558	1	382	5	251	2	4	1	1	11	1	22	7	—	39	—	4	—	52	18	1	9	1,699
2	—	34	41	—	232	16	34	4	1	3	—	2	—	—	—	3	9	—	1	7	2	—	1	5	470
37	3	114	1,031	10	230	295	241	14	8	42	11	23	1	—	1	—	47	—	6	139	67	157	6	153	2,736
71	—	8	44	48	24	30	17	15	—	3	1	6	—	1	—	—	3	—	1	14	24	6	—	7	355
462	**33**	**496**	**3,658**	**236**	**2,196**	**355**	**2,362**	**243**	**299**	**155**	**45**	**367**	**4**	**43**	**251**	**55**	**281**	**70**	**29**	**169**	**655**	**224**	**27**	**688**	**14,291**
91	21	25	396	3	745	145	304	100	34	56	4	23	—	24	42	6	80	2	12	502	195	3	3	60	3,239
22	15	13	1,356	26	312	—	397	10	6	19	10	10	—	1	1	40	19	—	2	9	66	19	6	38	2,496
2	6	—	29	5	111	—	23	29	4	13	2	8	—	30	5	2	6	—	6	1	39	2	—	12	787
3	—	—	43	9	110	—	54	2	13	4	1	1	—	32	8	2	9	—	1	—	1	4	—	13	573
10	1	2	46	1	178	—	29	9	15	7	2	3	1	58	4	4	29	—	8	8	35	6	1	23	1,073
49	1	476	1,263	25	1,488	3,046	381	93	12	20	14	4	2	6	3	3	32	—	7	219	130	18	1	51	7,641
177	**44**	**516**	**3,132**	**69**	**2,944**	**3,191**	**1,187**	**243**	**84**	**119**	**33**	**49**	**3**	**151**	**63**	**57**	**225**	**2**	**36**	**739**	**469**	**52**	**11**	**197**	**15,809**
12	2	8	469	40	1,200	4	1,144	100	44	18	14	24	—	149	35	12	100	—	8	289	293	60	2	102	4,641
6	—	—	254	—	834	—	46	1	—	18	—	1	—	38	10	—	11	—	1	5	18	12	—	14	2,263
10	—	—	117	1	393	—	24	1	9	9	—	—	—	156	28	1	70	—	3	4	13	12	1	13	1,570
17	—	21	360	9	438	1	205	6	5	8	2	1	—	79	1	—	17	1	2	1	20	9	—	41	2,038
11	—	—	367	11	362	—	187	222	1	63	3	—	1	43	20	4	22	—	—	1	28	5	3	18	1,774
16	766	85	72	12	325	156	90	444	25	78	6	12	9	3	3	3	58	—	9	1,357	609	218	24	133	4,696
26	—	5	28	1	76	—	18	3	3	17	1	10	1	35	1	1	65	—	4	—	5	8	—	4	809
10	—	197	282	22	197	918	269	40	10	26	2	2	2	1	6	1	59	1	5	128	25	15	5	64	2,642
163	**768**	**316**	**1,949**	**89**	**3,825**	**1,079**	**1,963**	**817**	**97**	**289**	**28**	**59**	**13**	**563**	**94**	**22**	**397**	**2**	**32**	**1,785**	**1,011**	**339**	**35**	**389**	**26,447**
58	3	144	1,101	42	1,437	2,047	535	66	55	124	10	20	7	83	30	9	103	—	20	169	6	17	3	134	6,758
19	—	9	43	1	61	43	18	53	11	9	2	3	—	2	7	4	3	6	5	18	1	1	—	11	409
10	2	—	39	3	45	66	24	63	3	53	2	13	—	1	2	—	72	—	1	3	2	4	6	9	549
6	14	—	14	—	89	6	9	1	11	15	1	11	—	27	20	1	42	—	3	—	—	—	—	31	783
13	—	1	6	—	81	43	22	13	4	26	2	15	—	—	1	—	62	—	1	7	4	3	2	37	423
3	—	—	5	1	88	362	30	9	6	11	8	12	1	25	21	1	29	—	6	8	3	9	—	7	963
7	4	—	11	2	93	8	39	27	3	71	22	128	1	2	7	2	40	7	9	8	12	4	4	15	620
116	**23**	**154**	**1,219**	**49**	**1,894**	**2,576**	**867**	**233**	**93**	**306**	**47**	**202**	**9**	**140**	**83**	**17**	**351**	**13**	**45**	**213**	**23**	**38**	**15**	**244**	**10,514**
1,272	**875**	**1,500**	**10,523**	**486**	**14,148**	**9,973**	**9,901**	**1,961**	**572**	**1,292**	**388**	**843**	**55**	**945**	**721**	**218**	**1,982**	**213**	**304**	**4,572**	**3,743**	**1,036**	**392**	**2,245**	**79,020**

The accidents in the two periods of 1900 therefore refer to different areas for each District.

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Table 17.—All Reported Accidents,

District.	Movement of Machinery.															
	Machinery moved by Mechanical Power.												Machinery not moved by Mechanical Power.			
	Hoists.		Shuttles.		Cranes and other Lifting Tackle.		Grind-stones.		Circular Saws.		Other.		Fatal.		Non-fatal.	
	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.				
F.—Factories. W.—Workshops.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	W.	F.	W.
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)	(11.)	(12.)	(13.)	(14.)	(15.)	(16.)	(17.)
1. North London*	1	23	—	—	1	20	—	7	1	47	4	332	—	—	29	—
2. South London	1	20	—	—	2	21	—	9	—	73	5	651	—	—	57	—
3. West London*	4	23	—	1	2	13	—	2	—	34	—	172	—	—	17	—
3a. Works assigned to Miss Deane	1	—	—	—	—	—	—	—	—	—	—	25	—	—	—	—
4. East London*	3	45	—	—	2	39	—	8	—	62	5	395	—	—	51	—
5. Kent	1	10	—	—	—	20	—	5	—	36	7	308	—	—	18	—
6. Southampton	—	1	—	—	2	8	—	8	1	26	1	121	—	—	9	1
7. Plymouth	—	8	—	1	3	25	—	9	—	39	5	154	—	—	13	—
8. Bristol	—	12	—	6	1	14	—	12	—	59	3	473	1	—	20	1
9. Northampton	—	—	—	—	—	—	—	1	—	7	2	146	—	—	4	—
10. Norwich	—	2	—	1	1	2	—	1	—	35	4	234	—	—	24	2
SOUTHERN DIVISION	11	155	—	9	14	207	—	62	2	403	36	3,001	1	—	242	4
11. Birmingham	1	19	—	—	2	15	1	16	1	94	6	903	—	—	150	—
12. Worcester	—	6	—	2	—	—	—	3	—	9	—	120	—	—	10	—
13. Wolverhampton	—	5	—	—	1	28	—	7	—	35	8	460	1	—	32	1
14. South Staffordshire	—	3	—	—	—	17	—	5	—	21	5	332	1	—	42	5
15. North Staffordshire	—	3	—	—	—	2	—	2	—	9	4	163	—	—	25	—
16. Leicester	—	3	—	—	—	2	—	4	—	19	—	372	—	—	25	3
17. Nottingham	—	6	—	—	1	3	—	3	—	33	2	192	—	—	9	1
18. Derby	1	14	—	1	2	69	—	5	1	23	4	274	—	—	58	1
19. Lincoln	1	5	—	—	—	8	—	8	—	34	3	111	—	—	11	—
20. South Wales	2	13	—	—	3	197	—	9	—	28	25	485	—	—	50	2
21. North Wales	—	3	—	—	2	6	—	2	—	8	2	52	—	—	7	—
MIDLAND DIVISION	5	71	—	3	11	252	1	64	2	313	59	3,478	2	—	477	13
22. Leeds	—	23	—	6	2	96	—	25	1	163	9	670	1	—	81	2
23. Sheffield	2	9	—	—	1	70	1	32	—	54	3	571	—	—	75	—
24. Huddersfield	—	12	—	9	—	7	—	2	—	12	5	410	—	—	17	1
25. Halifax	—	16	—	7	3	12	—	8	1	17	4	237	—	—	22	—
26. Bradford	—	27	—	14	—	16	—	9	—	34	3	524	—	—	22	—
27. Newcastle	3	20	—	—	13	235	—	24	—	73	34	1,178	3	—	162	1
NORTH EASTERN DIVISION.	5	107	—	36	19	436	1	180	2	293	63	3,590	4	—	379	4
28. Manchester	5	48	—	6	7	153	—	25	—	110	8	1,079	1	—	86	3
29. Oldham	1	18	—	11	—	22	—	44	—	16	3	960	—	—	22	—
30. Rochdale	—	27	—	24	1	10	—	17	—	28	3	711	1	—	29	—
31. Bolton	2	18	—	10	—	55	—	9	—	28	5	813	—	—	25	—
32. Cheshire	—	9	—	7	—	36	—	11	—	23	2	504	—	—	24	1
33. Liverpool	1	20	—	—	12	423	—	19	—	79	4	493	—	—	61	—
34. Blackburn	—	12	—	23	1	7	—	10	—	25	4	287	1	—	12	1
35. Preston	—	11	—	7	3	76	—	17	—	44	7	559	1	—	24	—
NORTH WESTERN DIVISION.	9	163	—	88	24	776	—	152	—	358	41	5,454	4	—	283	4
36. West Scotland	9	56	—	3	12	174	—	51	2	167	15	1,282	1	—	164	1
37. South West Scotland	—	1	—	—	1	17	—	2	—	19	4	135	—	—	15	—
38. South East Scotland	1	9	—	4	1	12	—	2	—	16	4	234	—	—	15	1
39. East Scotland	—	15	—	7	—	9	—	6	—	31	6	433	—	—	10	1
40. North Scotland	—	3	—	—	—	10	—	4	1	28	5	136	—	—	17	2
41. North Ireland	1	10	—	14	—	14	—	5	2	23	2	309	—	—	4	—
42. South Ireland	—	7	—	1	—	7	—	1	—	35	2	172	—	—	23	—
SCOTLAND AND IRELAND DIVISION	11	101	—	29	14	243	—	71	5	319	38	2,701	1	—	248	5
UNITED KINGDOM	41	597	—	165	82	1,914	2	449	11	1,686	237	18,224	12	—	1,629	30

* Within London the new boundaries of these Districts were not made effective until August 1st, 1900.

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1900: Causation, District.

Hot Liquid or Molten Metal or other Substance in Vat or Pan.				Explosion.				Electric Shock.				Escape of Gas, Steam, or Metal.				Falls (other than those included in preceding columns).				Other Causes.				Total.	
Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.	Non-fatal.
F. (18.)	W. (19.)	F. (20.)	W. (21.)	F. (22.)	W. (23.)	F. (24.)	W. (25.)	F. (26.)	W. (27.)	F. (28.)	W. (29.)	F. (30.)	W. (31.)	F. (32.)	W. (33.)	F. (34.)	W. (35.)	F. (36.)	W. (37.)	F. (38.)	W. (39.)	F. (40.)	W. (41.)	F. & W. (42.)	F. & W. (43.)
—	—	—	—	—	—	36	—	—	—	—	—	2	—	24	—	1	—	457	2	5	—	1,072	1	15	2,040
—	—	3	—	1	—	40	—	—	—	2	—	4	—	32	—	5	—	457	1	15	—	2,090	—	33	3,512
—	—	4	—	1	—	12	—	—	—	—	—	—	—	20	—	3	—	296	1	7	—	833	1	17	1,428
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	—	—	2	2	2	31
2	—	6	—	1	—	7	—	—	—	1	—	1	—	33	—	7	—	614	1	15	—	1,752	1	36	3,993
—	—	6	—	—	—	—	—	—	—	2	—	—	—	29	—	1	—	343	—	11	—	1,192	2	20	1,965
—	—	1	—	—	—	7	—	—	—	—	—	1	—	8	—	3	—	218	—	5	—	801	3	13	1,207
—	1	3	—	—	—	9	—	—	—	—	—	—	—	19	—	1	—	243	1	9	—	969	3	19	1,453
—	—	7	—	1	—	17	—	—	—	—	—	—	—	35	—	6	—	249	—	7	—	891	3	19	1,799
1	—	1	—	—	—	1	—	—	—	—	—	—	—	9	—	—	—	51	1	1	—	123	6	4	350
—	—	1	—	—	—	11	—	—	—	—	—	—	—	18	—	1	—	120	—	—	—	468	3	6	922
3	1	32	—	4	—	140	—	—	—	5	—	8	—	271	—	28	1	3,046	8	75	—	10,163	25	184	17,775
—	—	12	—	—	—	33	—	—	—	2	—	1	—	66	—	11	2	345	3	6	—	968	1	31	2,616
—	—	3	—	—	—	1	—	—	—	—	—	—	—	15	—	1	—	32	—	3	—	122	2	4	325
—	—	11	—	—	—	37	—	2	—	—	—	—	—	205	—	3	—	308	2	9	—	1,154	3	24	2,334
2	—	12	—	1	—	20	—	—	—	1	—	—	—	139	—	3	—	179	2	7	1	716	5	29	1,499
1	—	9	—	—	—	26	—	—	—	—	—	1	—	39	—	5	—	150	—	3	—	376	—	14	795
—	—	2	—	—	—	6	—	—	—	—	—	—	—	21	—	4	1	198	1	1	—	294	3	6	773
—	—	2	—	—	—	6	—	—	—	—	—	—	—	19	—	1	—	86	—	3	—	219	2	7	581
—	—	4	—	—	—	14	—	—	—	—	—	1	—	106	—	3	—	222	1	4	—	885	4	16	1,683
—	—	1	—	—	—	2	—	—	—	—	—	—	—	20	—	2	—	50	—	3	—	211	—	9	461
—	—	8	—	2	—	41	—	1	—	—	—	2	—	115	—	12	1	442	1	8	1	1,365	5	57	2,979
—	—	3	—	—	—	3	—	—	—	—	—	—	—	16	—	2	—	84	—	—	—	199	1	6	349
3	—	67	—	3	—	189	—	3	—	3	—	5	—	743	—	47	4	1,978	16	47	2	6,465	26	194	14,697
—	—	13	—	7	—	27	—	—	—	1	—	1	—	62	—	18	—	493	17	6	—	1,579	26	45	3,194
—	—	6	—	1	—	22	—	—	—	4	—	2	—	64	—	5	—	297	1	10	—	1,238	3	30	2,486
—	—	7	—	—	—	8	—	—	—	—	—	—	—	15	—	1	—	81	1	3	—	104	2	9	778
—	—	—	—	—	—	3	—	—	—	—	—	1	—	22	—	4	—	49	1	1	—	162	3	14	559
—	—	16	—	—	—	10	—	—	—	—	—	1	—	32	1	5	—	119	3	6	—	227	10	15	1,958
—	—	19	—	—	—	74	—	—	—	3	—	3	—	239	—	44	—	1,212	2	26	—	4,271	2	126	7,515
—	—	55	—	8	—	144	—	—	—	8	—	8	—	454	1	77	—	2,221	25	52	—	7,671	48	239	15,576
3	—	24	—	3	—	40	1	—	—	3	—	1	—	161	—	14	1	662	2	12	—	2,174	10	55	4,596
—	—	9	—	1	—	5	—	—	—	1	—	1	—	124	—	6	—	230	—	7	—	834	—	24	2,244
—	—	14	—	1	—	19	—	—	—	2	—	—	—	73	—	3	—	132	—	5	—	468	—	14	1,565
1	—	15	—	—	—	6	—	—	—	—	—	—	—	77	—	4	—	213	—	3	—	754	—	15	2,023
—	—	16	—	—	—	7	—	—	—	—	—	—	—	46	—	2	—	218	—	6	—	863	—	10	1,784
—	—	21	1	1	—	36	—	—	—	—	—	—	—	73	—	53	—	814	1	15	—	2,557	7	30	4,616
1	—	7	—	—	—	8	1	—	—	1	—	—	—	20	—	5	—	80	1	4	—	180	—	13	793
—	—	19	—	1	—	34	1	—	—	9	—	2	—	99	—	7	—	342	4	6	—	1,339	8	27	2,615
5	—	116	1	7	—	146	3	—	—	16	—	4	—	662	—	94	1	2,706	8	33	—	9,239	25	247	20,200
4	—	33	—	1	—	119	—	—	—	3	—	1	—	230	—	40	—	944	2	26	1	3,373	3	112	6,646
—	—	4	—	—	—	7	—	—	—	—	—	—	—	14	—	—	—	39	1	3	—	146	1	8	491
—	—	7	—	—	—	15	—	—	—	—	—	—	—	14	—	3	—	71	—	6	—	134	—	15	534
—	—	3	—	—	2	4	14	—	—	—	—	1	—	13	—	5	—	77	—	1	—	150	—	15	773
1	—	12	—	—	—	6	—	—	—	—	—	—	—	6	—	2	—	44	1	1	—	142	1	10	412
1	—	2	—	—	—	5	—	—	—	—	—	—	—	3	—	2	—	142	—	2	—	425	1	16	958
—	—	5	—	1	—	18	—	—	—	1	—	—	—	14	—	6	—	78	—	2	—	245	2	11	369
8	—	66	—	2	2	165	14	—	—	4	—	2	—	344	—	58	—	1,396	4	41	1	4,615	8	181	10,333
17	1	336	1	24	2	794	17	3	—	36	—	27	—	2,485	1	304	6	11,343	55	273	3	38,093	136	1,045	77,975

The accidents in the two periods of 1900 therefore, refer to different areas for each District.

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Table 18.—All Reported Accidents, 1900: Age and Sex, District.

District.	Adults over 18.		Young Persons. (13-18.)		Children (11-14).		All Ages.		
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Total.
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)
1. North London*	1,680	60	276	38	1	—	1,957	98	2,055
2. South London	2,902	162	433	47	1	—	3,336	209	3,545
3. West London*	1,204	49	172	19	—	1	1,376	69	1,445
3a. Works Assigned to Miss Deane	6	20	3	4	—	—	9	24	33
4. East London*	2,758	50	277	18	—	1	3,035	69	3,104
5. Kent	1,739	23	216	7	—	—	1,955	30	1,985
6. Southampton	1,062	11	144	3	—	—	1,206	14	1,220
7. Plymouth	1,281	24	161	5	1	—	1,443	29	1,472
8. Bristol	1,351	64	359	40	3	1	1,713	105	1,818
9. Northampton	241	6	98	6	3	—	342	12	354
10. Norwich	671	17	224	15	1	—	896	32	928
SOUTHERN DIVISION ..	14,895	486	2,363	202	19	3	17,266	691	17,959
11. Birmingham	1,866	166	487	130	—	—	2,353	296	2,649
12. Worcester	221	19	64	25	—	—	285	44	329
13. Wolverhampton	1,800	70	455	33	—	—	2,255	103	2,358
14. South Staffordshire	1,123	41	305	50	—	—	1,428	91	1,519
15. North Staffordshire	540	10	245	14	—	—	785	24	809
16. Leicester	490	24	217	43	4	1	711	68	779
17. Nottingham	396	21	141	29	1	—	538	50	588
18. Derby	1,438	30	216	13	1	1	1,655	44	1,699
19. Lincoln	376	3	87	3	1	—	464	6	470
20. South Wales and Monmouthshire.	2,296	29	388	22	1	—	2,685	51	2,736
21. North Wales	289	1	63	1	1	—	353	2	355
MIDLAND DIVISION	10,835	414	2,693	363	9	2	13,512	779	14,291
22. Leeds	2,621	71	461	86	—	—	3,082	157	3,239
23. Sheffield	2,059	21	383	31	2	—	2,444	52	2,496
24. Huddersfield	480	105	139	56	4	3	623	164	787
25. Halifax	373	42	112	28	12	6	497	76	573
26. Bradford	623	150	196	80	16	6	837	236	1,073
27. Newcastle	6,497	52	1,061	29	2	—	7,560	81	7,641
NORTH EASTERN DIVISION.	12,653	441	2,354	310	36	15	15,043	766	15,809
28. Manchester	3,662	74	830	73	2	—	4,494	147	4,641
29. Oldham	1,511	152	435	128	37	5	1,983	285	2,268
30. Rochdale	1,084	125	299	87	29	5	1,362	217	1,579
31. Bolton	1,294	160	434	135	32	3	1,740	298	2,038
32. Cheshire	1,308	62	338	51	13	2	1,659	115	1,774
33. Liverpool	4,100	93	434	63	6	—	4,540	156	4,696
34. Blackburn	498	93	127	64	18	9	643	166	809
35. Preston	2,111	64	411	46	9	1	2,531	111	2,642
NORTH WESTERN DIVISION.	15,448	823	3,358	647	146	25	18,952	1,495	20,447
36. West Scotland	5,596	131	892	128	8	3	6,496	262	6,758
37. South West Scotland	294	25	65	22	3	—	362	47	409
38. South East Scotland	367	39	107	36	—	—	474	75	549
39. East Scotland	387	195	144	59	2	1	533	255	788
40. North Scotland	304	15	85	18	—	—	389	33	422
41. North Ireland	650	86	173	51	8	1	831	137	968
42. South Ireland	499	31	72	17	1	—	572	48	620
SCOTLAND AND IRELAND DIVISION.	8,097	521	1,538	331	22	5	9,657	857	10,514
UNITED KINGDOM	61,928	2,685	12,231	1,853	223	50	74,432	4,588	79,020

* Within London the new boundaries of these Districts were not made effective until 1st August, 1900. The accidents in the two periods of 1900, therefore, refer to different areas for each District.

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TABLE 19.—Representations to Local Authorities by H.M. Inspectors, 1900.

(1878, s. 4; 1891, ss. 2, 7; 1895, s. 10.)

District. (1.)	Total Number of Representations.							
	Overcrowding; Air Space. (2.)	Ventilation; Dust; Fumes. (3.)	Effluvia. (4.)	Sanitary Conveniences. (5.)	Cleanliness. (6.)	Fire. (7.)	Other. (8.)	Total. (9.)
1. North London	21	11	5	111	134	30	70	382
2. South London	4	6	9	52	80	1	19	171
3. West London*	24	7	3	46	50	17	5	152
4. East London	43	23	12	90	197	4	39	408
5. Kent	—	1	2	11	3	3	1	21
6. Southampton	16	1	3	5	31	—	3	59
7. Plymouth	2	2	—	6	7	1	3	21
8. Bristol	2	3	4	26	11	—	4	50
9. Northampton	3	—	1	19	7	2	2	34
10. Norwich	5	3	4	82	17	—	8	119
SOUTHERN DIVISION	120	57	43	442	537	53	154	1,417
11. Birmingham	12	1	21	158	170	—	2	364
12. Worcester	3	1	—	—	2	—	—	6
13. Wolverhampton	2	1	1	1	1	—	1	7
14. South Staffordshire	5	2	5	8	13	3	3	39
15. North Staffordshire	—	—	2	10	5	—	—	17
16. Leicester	3	1	—	7	24	1	2	38
17. Nottingham	—	1	2	33	1	12	—	49
18. Derby	6	15	3	25	52	7	18	126
19. Lincoln	5	—	—	12	6	—	1	24
20. South Wales and Monmouthshire	10	6	3	2	8	—	—	29
21. North Wales	2	—	1	7	13	—	3	26
MIDLAND DIVISION	48	26	38	263	285	23	30	725
22. Leeds	—	2	1	18	20	11	1	53
23. Sheffield	15	36	6	98	26	3	15	199
24. Huddersfield	—	—	1	33	6	3	—	43
25. Halifax	1	3	3	19	7	14	35	82
26. Bradford	—	3	8	50	2	7	1	71
27. Newcastle	2	9	—	24	6	2	1	44
NORTH-EASTERN DIVISION	18	53	19	242	67	40	53	492
28. Manchester	1	4	9	43	20	17	5	99
29. Oldham	—	—	—	2	1	1	—	4
30. Rochdale	—	1	3	38	1	31	1	75
31. Bolton	—	—	—	—	6	1	—	7
32. Cheshire	11	7	6	10	20	3	2	59
33. Liverpool	2	11	8	44	36	10	19	130
34. Blackburn	1	17	11	20	27	3	4	83
35. Preston	7	9	5	28	57	4	41	151
NORTH-WESTERN DIVISION	22	49	42	185	168	70	72	608
36. West Scotland	5	9	3	46	28	5	3	99
37. South West Scotland	1	2	—	17	3	2	18	43
38. South East Scotland	—	—	—	5	9	—	1	15
39. East Scotland	5	1	7	47	33	3	1	97
40. North Scotland	5	1	—	5	73	1	—	85
41. North Ireland	27	6	1	29	71	—	—	134
42. South Ireland	13	4	3	138	79	2	26	264
SCOTLAND AND IRELAND DIVISION	55	23	14	287	296	13	49	737
Lady Inspectors:— (a.) As to works assigned to Miss Deane	35	57	3	71	88	3	53	308
(b.) As to other works	17	8	10	162	47	1	10	255
GRAND TOTAL	315	275	169	1,658	1,498	297	429	4,542
Total for 1899	256	253	174	1,586	979	474	469	4,191
Total for 1898	331	283	176	1,592	902	603	276	3,963

* The figures given for the West London District do not include the works assigned to Miss Deane. Separate note of these is made later on in the Table.

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TABLE 20.—Reported cases of Lead, Mercury, Phosphorus,

Disease and Industry. M.—Males. F.—Females.	Adults.				Young Persons.			
	M.		F.		M.		F.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)
Lead Poisoning:—								
1. Smelting of Metals	34	1	—	—	—	—	—	—
2. Brass Works	3	—	—	—	—	—	—	—
3. Sheet Lead and Lead Piping	16	—	—	—	1	1	—	—
4. Plumbing and Soldering	8	—	1	—	—	—	—	—
5. Printing	16	1	—	—	2	1	—	—
6. File Cutting	37	3	3	—	—	—	—	—
7. Tinning and Enamelling of Iron Holloware.	2	—	—	—	—	—	3	—
8. White Lead Works	325	5	33	1	—	—	—	—
9. Red and Yellow Lead Works	19	—	—	—	—	—	—	—
10. China and Earthenware	86	4	98	4	9	—	12	—
10a. Litho-transfer Works	6	—	—	—	1	—	3	—
11. Glass Cutting and Polishing	7	—	—	—	—	—	—	—
12. Enamelling of Iron Plates	8	—	3	—	—	—	—	—
13. Electric Accumulator Works	31	—	—	—	2	—	—	—
14. Paints and Colours	51	1	5	—	—	—	—	—
15. Coach making	68	5	—	—	2	—	—	—
16. Ship building	32	2	—	—	—	—	—	—
17. Paint used in Other Industries	48	4	—	—	1	1	—	—
18. Other Industries	65	4	12	—	3	—	6	—
Total—Lead Poisoning	862	30	150	5	21	3	24	—
Mercury Poisoning:—								
1. Barometer and Thermometer making.	1	—	—	—	—	—	—	—
2. Furriers' processes	—	—	2	—	—	—	—	—
3. Other Industries	6	—	—	—	—	—	—	—
Total—Mercury Poisoning	7	—	2	—	—	—	—	—
Phosphorus Poisoning:—								
1. Lucifer Match Works	1	—	3	—	—	—	—	—
2. Other Industries	—	—	—	—	—	—	—	—
Total—Phosphorus Poisoning	1	—	3	—	—	—	—	—
Arsenic Poisoning:—								
1. Paints, Colours, and Extraction of Arsenic.	—	—	6	—	—	—	1	—
2. Other Industries	15	3	—	—	—	—	—	—
Total—Arsenic Poisoning	15	3	6	—	—	—	1	—
Anthrax:—								
1. Wool Sorting	7	2	2	—	—	—	—	—
2. Wool Combing	—	—	—	—	—	—	—	—
3. Handling of Horsehair	5	1	2	2	3	—	2	—
4. Handling and Sorting of Hides and Skins (Tanners, Fellmongers, &c.).	9	1	—	—	—	—	—	—
5. Other Industries	3	1	1	—	1	—	2	—
Total—Anthrax	24	5	5	2	4	—	4	—
GRAND TOTAL	908	36	165	7	25	3	29	—

"**CASES**" include all attacks, fatal or otherwise, reported during the year, and not reported, so far as is known, in the twelve months preceding such attacks.

"**DEATHS**" include all deaths reported during the year, whether included (as Cases) in previous tables or not.

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and Arsenic Poisoning, and Anthrax: 1900.

Children.				Total.						*Total for 1899.*
M.		F.		M.		F.		M. & F.		M. & F.
Cases. (10.)	Deaths. (11.)	Cases. (12.)	Deaths. (13.)	Cases. (14.)	Deaths. (15.)	Cases. (16.)	Deaths. (17.)	Cases. (18.)	Deaths. (19.)	Cases. (20.)
—	—		—	34	1	—	—	34	1	*61*
—	—	—	—	3	—	—	—	3	—	Included in Other Industries.
—	—	—	—	17	1	—	—	17	1	*27*
—	—	—	—	8	—	1	—	9	—	Included in Other Industries.
—	—	—	—	18	2	—	—	18	2	Ditto.
—	—	—	—	37	3	3	—	40	3	*41*
—	—	—	—	2	—	3	—	5	—	*16*
—	—	—	—	325	5	33	1	358	6	*399*
—	—	—	—	19	—	—	—	19	—	*23*
—	—	—	—	95	4	105	4	200	8	*249*
—	—	—	—	7	—	3	—	10	—	*11*
—	—	—	—	7	—	—	—	7	—	*8*
—	—	—	—	8	—	3	—	11	—	*9*
—	—	—	—	33	—	—	—	33	—	*32*
—	—	—	—	51	1	5	—	56	1	*75*
—	—	—	—	70	5	—	—	79	5	*65*
—	—	—	—	33	2	—	—	33	2	*30*
1	—	—	—	50	5	—	—	50	5	*52*
—	—	—	—	68	4	18	—	36	4	*161* (including Classes 2, 4, 5).
1	—	—	—	884	33	174	5	1,058	38	*1,358*
—	—	—	—	1	—	—	—	1	—	*3*
—	—	—	—	—	—	2	—	2	—	*1* From May 1st, 1899.
—	—	—	—	6	—	—	—	6	—	*6*
—	—	—	—	7	—	2	—	9	—	*10*
—	—	—	—	1	—	2	—	3	—	*7*
—	—	—	—	—	—	—	—	—	—	*1*
—	—	—	—	1	—	2	—	3	—	*8*
—	—	—	—	—	—	7	—	7	—	—
—	—	—	—	15	3	—	—	15	3	—
—	—	—	—	15	3	7	—	22	3	—
—	—	—	—	7	2	2	—	9	2	*18*
—	—	—	—	—	—	—	—	—	—	
—	—	—	—	8	1	4	2	12	3	*17*
—	—	—	—	9	1	—	—	9	1	*16*
—	—	—	—	4	1	3	—	7	1	*4*
—	—	—	—	28	5	9	2	37	7	*55*
1	—	—	—	965	41	194	7	1,159	48	*1,331*

In addition to the cases included in the Table 199 cases of lead poisoning (including 38 deaths) were reported among house painters and plumbers.

Of the cases included in the Table 824 were notified by Medical Practitioners to the Chief Inspector, and 666 were reported to the Inspector for the District by Occupiers.

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TABLE 21.—Prosecutions, 1900: Offence and Penalty.

Description of Offence.	Statutory Provision in virtue of which Action was taken.	Groups of Prosecutions.*	Number of Cases.*			Result.			Convictions and cases withdrawn on payment of costs in 1899.	Total Amount of Penalties.	Average Penalty in each Case where Conviction ensued.	Total Amount of Costs.	Average Costs in each Case where Conviction or Withdrawal on Payment of Costs ensued.
			Factories.	Workshops.	Total.	Convictions.	Cases withdrawn on Payment of Costs.	Cases dismissed, "not proven," &c.					
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)	(11.)	(12.)	(13.)	(14.)
										£ s. d.	£ s. d.	£ s. d.	£ s. d.
I.—GENERAL:—													
(a) Administration. **A.—Keeping Registers, Sending Notices, &c.:—**	.. ..	285	244	133	377	355	9	13	414	216 6 0	0 17 10	151 3 6	0 8 4
Failure as regards:—													
1. Notification of commencement of occupation.	1878, s. 75; 1891, s. 26; 1895, s. 44	24	16	8	24	23	1	—	31	28 10 6	1 4 10	8 3 3	0 6 10
2. Notification of existence of workshop.	1895, s. 41	—	—	—	—	—	—	—	—	—	—	—	—
3. Keeping register of children and young persons, &c.	1878, s. 77; 1895, s. 15	101	97	4	101	99	—	2	87	74 16 6	0 15 1	45 11 2	0 9 2
4. Keeping register of overtime, or affixing particulars, or sending notice of same.	1878, ss. 53, 66; 1891, s. 14; 1895, ss. 22, 44	67	47	100	147	136	5	6	146	94 5 0	0 13 10	46 1 9	0 6 4
5. Keeping list of out-workers, or keeping it open to inspection, or sending list to H.M. Inspector.	1891, s. 27; 1895, s. 42	18	1	17	18	16	1	1	9	21 4 6	1 6 6	5 4 6	0 6 2
6. Keeping register of accidents and diseases, or keeping it open to inspection.	1895, ss. 20, 23, 29	24	22	2	24	22	—	2	16	22 6 0	1 0 3	14 10 9	0 13 3
7. Notifying accident	1895, ss. 18, 23, 29	55	54	2	56	54	1	1	43	70 8 6	1 6 1	28 8 7	0 10 4
8. Notifying cases of anthrax or of poisoning by lead, phosphorus, arsenic, or mercury.	1895, ss. 23, 29	3	4	—	4	2	1	1	5	2 5 0	1 2 6	1 9 6	0 9 10
9. Sending other prescribed notices.	1878, s. 22; 1891, s. 16	—	—	—	—	—	—	—	1	—	—	—	—
10. Sending correct annual return.	1895, s. 34	—	—	—	—	—	—	—	66	—	—	—	—
11. Forging, &c. certificate, or making false entry in register or document.	1878, s. 85	3	3	—	3	3	—	—	10	2 10 0	0 16 8	1 14 0	0 11 4
B.—Posting of Abstracts, Notices, &c.:—	.. ..	128	51	77	128	121	—	7	106	93 5 3	0 15 5	44 0 7	0 7 3
1. Failure to affix abstracts and notices.	1878, ss. 22, 78; 1891, s. 16; 1895, ss. 1, 24	120	47	73	120	113	—	7	101	87 7 9	0 15 6	40 4 7	0 7 1
2. Failure to specify on notice the period of employment, meals, &c.	1878, ss. 19, 24	8	4	4	8	8	—	—	5	5 17 6	0 14 8	3 16 0	0 9 6
C.—Obstruction or Personation of H.M. Inspectors:—	.. ..	7	5	2	7	5	—	2	15	8 15 9	1 15 0	2 8 0	0 9 7
1. Obstruction	1878, s. 68; 1895, s. 23	7	5	2	7	5	—	2	15	8 15 0	1 15 0	2 8 0	0 9 7
2. Personation	1878, s. 70	—	—	—	—	—	—	—	—	—	—	—	—
Total: Administration ..	.. ..	430	368	212	512	481	9	22	535	418 0 3	0 17 5	107 12 1	0 8 1
(b) Sanitation and Safety. **D.—Fencing; Dangerous Machinery, &c.:—**	.. ..	132	136	—	136	132	2	2	134	541 15 9	4 2 1	71 13 1	0 10 8
1. Failure to fence dangerous machinery.	1878, s. 5; 1891, s. 6; 1895, ss. 7, 13, 22, 23, 24	97	100	—	100	97	1	2	103	210 9 6	2 3 5	45 17 6	0 9 4
2. Penal Compensation in cases where death or injury has resulted from:—													
(a.) Failure to fence machinery.	1878, ss. 5, 82; 1891, s. 6; 1895, ss. 7, 13, 22, 23, 24	36	36	—	36	35	1	—	31	331 5 6	9 9 4	25 15 7	0 14 4
(b.) Failure to observe special rules.		—	—	—	—	—	—	—	—	—	—	—	—
(c.) Failure to observe other requirements of the Acts.		—	—	—	—	—	—	—	—	—	—	—	—
3. Using prohibited machinery	1895, ss. 4, 22, 23	—	—	—	—	—	—	—	—	—	—	—	—
4. Allowing traversing carriage of self-acting machine to run out within a distance of 18 inches from any fixed structure not being part of machine.	1895, s. 9	—	—	—	—	—	—	—	—	—	—	—	—
(*See also* **M.** 2 & 3, **S.** 2 & 3, **K.** 1 & 2, and **VIII.**)													

* By *Case* is meant each item of prosecution, *e.g.*, a summons for employing three women beyond legal hours is entered as three "cases," but as one "group of prosecutions."

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TABLE 21.—Prosecutions, 1900 : Offence and Penalty—*continued.*

Description of Offence.	Statutory Provision in virtue of which Action was taken.	Groups of Prosecutions.*	Number of Cases.*			Result.			Cases in which Convictions and Cases withdrawn on payment of costs in 1899.	Total Amount of Penalties.	Average Penalty in each Case where Conviction ensued.	Total Amount of Costs.	Average Costs in each Case where Conviction or Withdrawal on Payment of Costs ensued.
			Factories.	Workshops.	Total.	Convictions.	Cases withdrawn on Payment of Costs.	Cases dismissed, "not proven," &c.					
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)	(11.)	(12.)	(13.)	(14.)
										£ s. d.	£ s. d.	£ s. d.	£ s. d.
I.—GENERAL—*cont.* :—													
E.—Dangerous Structural Condition :—Use of dangerous factory or workshop.	1895, ss. 2, 24	—	—	—	—	—	—	—	1	—	—	—	—
F.—Means of Escape in case of Fire :—	.. ..	2	2	—	2	1	1	—	1	0 19 0	0 19 0	0 18 0	0 9 0
1. Failure to hold certificate from sanitary authority.	1891, ss. 2, 7 ; 1895, s. 10	—	—	—	—	—	—	—	1	—	—	—	—
2. Failure to observe instructions of sanitary authority.	1891, ss. 2, 7 ; 1895, ss. 10, 11	—	—	—	—	—	—	—	—	—	—	—	—
3. Failure to provide moveable fire escapes.	1895, s. 10	1	1	—	1	—	1	—	—	—	—	0 4 0	0 4 0
4. Allowing doors of factory, &c., to be illegally fastened.	1895, s. 10	1	1	—	1	1	—	—	—	0 10 0	0 10 0	0 14 0	0 14 0
5. Allowing doors of factory, &c. (not being sliding doors) to be constructed so as not to open outwards.	1895, s. 10	—	—	—	—	—	—	—	—	—	—	—	—
G.—Investigation of Accidents :—Non-compliance with summons, &c., or obstruction of court.	Coal Mines Regulation Act, 1887, s. 45. Factory Act, 1895, ss. 21, 23, 29	—	—	—	—	—	—	—	—	—	—	—	—
H.—Cleanliness, Ventilation, Overcrowding :—	.. ..	66	64	4	63	65	2	1	52	107 5 2	1 13 0	23 11 10	0 7 1
1. Failure to limewash factory, &c.	1878, ss. 33, 34, 77 ; 1895, ss. 24, 27, 43	61	61	—	61	59	2	—	45	90 15 2	1 10 9	22 4 10	0 7 4
2. Failure to keep factory in cleanly condition, &c.	1878, ss. 3, 63, 66 ; 1895, ss. 22, 24	—	—	—	—	—	—	—	1	—	—	—	—
3. Failure to provide or use fans, &c., to prevent inhalation of dust or fumes.	1878, s. 36 ; 1895, ss. 24, 33	2	2	—	2	1	—	1	—	2 0 0	2 0 0	0 5 6	0 5 6
4. Allowing factory to be overcrowded, &c.	1878, ss. 3, 53, 56, 63, 66 ; 1895, ss. 1, 24	1	1	—	1	1	—	—	—	0 10 0	0 10 0	0 10 6	0 10 6
5. Allowing workshop to be overcrowded, &c.	1878, ss. 53, 56, 63, 66 ; 1895, s. 1	4	—	4	4	4	—	—	6	14 0 0	3 10 0	0 11 0	0 2 9
I.—Temperature :—Neglecting to maintain reasonable temperature.	1895, s. 32	1	—	1	1	1	—	—	—	0 5 0	0 5 0	0 18 9	0 18 9
J.—Sanitary Conveniences :—Neglecting to provide sufficient or suitable sanitary conveniences.	1895, s. 35	5	5	—	5	5	—	—	—	1 3 0	0 4 7	0 9 6	0 1 11
Total : Sanitation and Safety	.. ..	209	207	5	212	204	5	3	133	650 13 2	3 3 10	97 2 5	0 9 4
L.—CHILDREN :—													
K.—Age, Fitness, &c., of Children :—	.. ..	37	50	2	52	50	—	2	69	32 19 2	0 13 2	26 10 5	0 10 7
1. Under legal age	1878, s. 20 ; 1891, s. 18 ; 1895, s. 23	3	1	2	3	2	—	1	3	1 3 6	0 11 3	1 3 6	0 11 9
2. Without certificate of school attendance.	1878, ss. 23, 24	4	7	—	7	6	—	1	27	1 2 0	0 3 8	3 3 0	0 10 6
3. Without certificate of fitness	1878, s. 27	30	42	—	42	42	—	—	39	30 14 8	0 14 8	22 3 11	0 10 7

(b) Sanitation and Safety—*cont.*

By *Case* is meant each item of prosecution, *e.g.*, a summons for employing three women beyond legal hours is entered as three "cases," but as one "group of prosecutions."

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TABLE 21.—Prosecutions, 1900: Offence and Penalty—*continued.*

Description of Offence.	Statutory Provision in virtue of which Action was taken.	Groups of Prosecutions.*	Number of Cases.*			Result.			Convictions and cases withdrawn on payment of costs in 1899.	Total Amount of Penalties.	Average Penalty in each Case where Conviction ensued.	Total Amount of Costs.	Average Costs in each Case where Conviction or Withdrawal on Payment of Costs ensued.
			Factories.	Workshops.	Total.	Convictions.	Cases withdrawn on Payment of Costs.	Cases dismissed, "not proven," &c.					
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)	(11.)	(12.)	(13.)	(14.)
										£ s. d.	£ s. d.	£ s. d.	£ s. d.
II.—CHILDREN—*cont.*:—													
L.—Employment of Children at Illegal Times:—	.. ..	67	67	18	85	63	—	2	65	95 0 9	1 2 11	40 10 7	0 9 1
1. Before or after legal hours ..	1878, ss. 10, 12, 14, 5 4 1895, ss. 22, 36	3	5	3	8	8	—	—	6	8 15 0	1 1 10	4 0 6	0 1
2. Before or after legal hours in business of, but outside, the factory or workshop.	1895, s. 16	—	—	—	—	—	—	—	—	—	—	—	—
3. Beyond legal hour on half holiday.	1878, ss. 10, 12, 14, 46, 54; 1895, s. 36	—	—	—	—	—	—	—	3	—	—	—	—
4. Beyond legal number of hours in laundries.	1895, s. 22	—	—	—	—	—	—	—	1	—	—	—	—
5. At meal times	1878, ss, 17, 19	11	18	—	18	18	—	—	5	13 16 10	0 15 5	8 18 0	0 9 11
6. In prohibited room during meal hours.	1878, s. 39	—	—	—	—	—	—	—	—	—	—	—	—
7. Beyond legal period without interval for meals.	1878, ss. 12, 14; 1895, s. 22	—	—	—	—	—	—	—	—	—	—	—	—
8. Otherwise than in morning and afternoon sets or on alternate days.	1878, ss. 10, 12, 14; 1895, s. 22	29	23	12	35	33	—	2	28	30 12 6	0 18 7	15 6 11	0 9 4
9. At night	1878, ss. 10, 12, 14, 83; 1895, s. 36	18	20	3	23	23	—	—	20	39 15 8	1 14 7	12 3 2	0 10 7
10. On successive Saturdays	1878, s. 12	—	—	—	—	—	—	—	2	—	—	—	—
11. On Saturday in a week in which there has been employment for more than 5½ hours on one day.	1878, s. 12	—	—	—	—	—	—	—	—	—	—	—	—
12. On Sunday	1878, s. 21	1	1	—	1	1	—	—	—	2 0 0	2 0 0	0 2 0	0 2 0
13. On statutory holiday.. ..	1878, s. 23; 1891, ss. 16, 33, 34; 1895, ss. 17, 22	—	—	—	—	—	—	—	—	—	—	—	—
M.—Occupation of Children:—	.. ..	20	20	—	20	19	1	—	6	11 12 0	0 12 3	14 4 0	0 14 1
1. In prohibited industry ..	1878, s. 38	1	1	—	1	1	—	—	—	1 0 0	1 0 0	0 3 6	0 3 6
2. Cleaning machinery in motion.	1878, s. 9	16	16	—	16	15	1	—	5	8 2 6	0 10 10	11 11 6	0 14 1
3. Remaining between fixed and traversing parts of a machine.	1878, s. 9; 1895, s. 9	3	3	—	3	3	—	—	1	2 10 0	0 10 3	2 9 0	0 11
N.—Parental Obligations:—	.. ..	5	3	2	5	5	—	—	10	0 10 6	0 2 1	1 2 0	0 4 5
1 Parent allowing child to be illegally employed.	1878, s. 84.	4	3	1	4	4	—	—	10	0 10 0	0 2 6	1 2 0	0 5 0
2 Parent neglecting to cause child to attend school.	1878, ss. 23, 84	1	—	1	1	1	—	—	—	0 0 6	0 0 6	—	—
O.—Personation:—Connivance at personation of child.	1878, s. 85	1	1	—	1	1	—	—	—	0 0 6	0 0 6	0 5 0	0 5 0
P.—Jewish Employers:—Illegal employment by Jew of Jewish child.	1878, ss. 50, 51	—	—	—	—	—	—	—	—	—	—	—	—
Total: Children	.. ..	139	141	22	163	153	1	4	150	140 2 3	0 17 9	32 12 6	0 4 5

* By *Case* is meant each item of prosecution, *e.g.*, a summons for employing three women beyond legal hours is entered as three "cases," but as one "group of prosecutions."

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TABLE 21.—Prosecutions, 1900: Offence and Penalty—*continued.*

Description of Offence.	Statutory Provision in virtue of which Action was taken.	Groups of Prosecutions.*	Number of Cases.*			Result.			Cases withdrawn on payment of costs in 1899.	Total Amount of Penalties.	Average Penalty in each Case where Conviction ensued.	Total Amount of Costs.	Average Costs in each Case where Conviction or Withdrawal on Payment of Costs ensued.
			Factories.	Workshops.	Total.	Convictions.	Cases withdrawn on Payment of Costs.	Cases dismissed, "not proved," &c.					
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)	(11.)	(12.)	(13.)	(14.)
										£ s. d.	£ s. d.	£ s. d.	£ s. d.
:—YOUNG PERSONS:—													
Q.—Fitness, &c.:—Employing young person under 16 without certificate of fitness.	1878, s. 27	246	421	—	421	416	—	5	573	301 19 10	0 14 0	193 2 3	0 9 3
R.—Employment of Young Persons at Illegal Times:—	.. ..	437	615	247	862	831	4	27	1,009	563 9 10	0 13 7	336 13 2	0 8 1
1. Before or after legal hours ..	1878, ss. 10, 11, 13, 45, 54, 58; 1895, ss. 22, 36, 38	254	329	140	469	459	1	9	536	308 17 11	0 13 5	174 4 4	0 7 7
2. Before or after legal hours in business of, but outside, the factory or workshop when employed therein before and after dinner hour.	1895, s. 16	1	—	1	1	1	—	—	4	2 0 0	2 0 0	0 19 8	0 19 8
3. On same day in factory or workshop, and in a shop for a total period exceeding the time permitted for employment in factory or workshop.	1895, s. 16	1	—	1	1	—	—	1	4	—	—	—	—
4. Beyond legal hour on half-holiday.	1878, ss. 10, 11, 13, 45, 54; 1895, ss. 14, 36	43	32	39	71	67	1	3	87	31 9 0	0 9 5	25 13 4	0 7 7
5. Beyond legal number of hours in laundries.	1895, s. 22	5	12	1	13	13	—	—	32	18 0 0	1 7 8	5 16 6	0 9 0
6. At meal times	1878, ss. 17, 19, 58; 1895, s. 14	45	142	9	151	139	1	11	142	51 13 2	0 7 5	63 17 10	0 9 2
7. In prohibited room during meal hours.	1878, ss. 39, 58	1	1	—	1	1	—	—	1	1 0 0	1 0 0	0 14 0	0 14 0
8. Beyond legal period without interval for meals.	1878, ss. 11, 13, 58; 1895, ss. 14, 22	14	10	6	16	15	1	—	15	17 14 6	1 2 2	6 19 4	0 8 2
9. At night	1878, ss. 11, 13, 58, 59, 60, 63; 1895, ss. 14, 36, 38	79	74	44	118	115	—	3	158	118 6 9	1 0 7	51 3 2	0 8 11
10. On Sunday	1878, s. 21; 1895, s. 14	10	13	3	16	16	—	—	26	11 13 6	0 14 7	7 10 6	0 9 5
11. On statutory holiday ..	1878, s. 22; 1891, ss. 16, 33, 34; 1895, ss. 17, 22	4	2	3	5	5	—	—	4	2 15 0	0 11 0	1 19 6	0 7 11
S.—Occupation of Young Persons:—	.. ..	5	7	—	7	4	—	3	6	6 6 8	1 11 8	3 4 4	0 16 1
1. In prohibited industry ..	1878, s. 38	3	5	—	5	2	—	3	3	4 1 8	2 0 10	1 10 10	0 15 5
2. Cleaning mill gearing or other dangerous parts of machinery in motion.	1878, s. 9; 1895, s. 8	1	1	—	1	1	—	—	—	2 0 0	2 0 0	0 15 0	0 15 0
3. Remaining between fixed and traversing parts of machine.	1878, s. 9; 1895, s. 9	1	1	—	1	1	—	—	3	0 5 0	0 5 0	0 18 6	0 18 6
T.—Parental Obligations:—Parent allowing young person to be illegally employed.	1878, s. 84	—	—	—	—	—	—	—	—	—	—	—	—
U.—Personation:—Connivance at personation of young person.	1878, s. 85	12	12	—	12	11	—	1	3	1 4 6	0 2 3	5 10 0	0 10 0
V.—Jewish Employers:—Illegal employment by Jew of Jewish young person.	1878, ss. 50, 51	—	—	—	—	—	—	—	—	—	—	—	—
Total: Young Persons	.. ..	799	1,055	247	1,302	1,262	4	36	1,391	872 11 10	0 13 10	540 14 9	0 8 6

* By *Case* is meant each item of prosecution, *e.g.*, a summons for employing three women beyond legal hours is entered as three "cases," but as one "group of prosecutions."

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TABLE 21.—Prosecutions, 1900: Offence and Penalty—*continued.*

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			Factories.	Workshops.	Total.	Convictions.	Cases withdrawn on Payment of Costs.	Cases dismissed, "not proven," &c.					
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)	(11.)	(12.)	(13.)	(14.)
										£ s. d.	£ s. d.	£ s. d.	£ s. d.
IV.—WOMEN:—													
W.—Employment of Women at Illegal Times:—	.. ..	306	562	414	976	939	25	12	*1,092*	505 14 0	0 10 9	304 6 2	0 6 4
1. Before or after legal hours ..	1878, ss. 10, 11, 13, 15, 53, 54, 56; 1891, s. 13; 1895, ss. 14, 22, 36, 37	137	224	185	409	381	23	5	*327*	159 9 0	0 8 5	105 3 8	0 5 3
2. Before or after legal hours in business of, but outside, the factory or workshop when employed therein before and after dinner hour.	1895, s. 16	1	2	—	2	2	—	—	*2*	3 0 0	1 10 0	0 4 0	0 2 0
3. On same day in factory or workshop and in a shop for a total period exceeding the time permitted for employment in factory or workshop.	1895, s. 16	11	—	12	12	11	—	1	*6*	4 8 6	0 8 1	1 14 6	0 3 1
4. Beyond legal hour on half-holiday.	1878, ss. 10, 11, 13, 15, 46, 54; 1891, s. 13; 1895, ss. 14, 36	44	8	87	95	91	2	2	*163*	65 16 0	0 14 6	30 19 2	0 6 8
5. Beyond legal number of hours in laundries.	1895, s. 22	4	4	—	4	4	—	—	*38*	13 10 0	3 2 6	2 0 0	0 10 0
6. At meal times	1878, ss. 17, 19, 53, 56	57	273	43	316	315	—	1	*339*	149 11 0	0 9 6	121 18 3	0 7 9
7. In prohibited room during meal hours.	1878, s. 39	1	1	—	1	1	—	—	*4*	0 10 0	0 10 0	0 17 0	0 17 0
8. Beyond legal period without interval for meals.	1878, ss. 11, 13, 15, 53, 56; 1891, s. 13; 1895, s. 22	10	6	24	30	30	—	—	*37*	15 16 0	0 10 6	4 7 7	0 3 11
9. At night	1878, ss. 11, 13, 15, 53, 56, 83; 1891, s. 13; 1895, ss. 14, 36, 37	31	30	47	77	75	—	2	*154*	75 10 6	1 0 5	27 1 0	0 7 4
10. On Sunday	1878, s. 21	5	14	2	16	15	—	1	*4*	15 0 0	1 0 0	6 5 0	0 8 4
11. On statutory holiday.. ..	1878, s. 22; 1891, ss. 16, 33, 34; 1895, s. 22	5	—	14	14	14	—	—	*11*	4 3 0	0 5 11	3 16 0	0 5 5
12. Within four weeks after childbirth.	1901, s. 17; 1895, s. 22	—	—	—	—	—	—	—	—	—	—	—	—
X.—Occupation of Women:—	.. ..	—	—	—	—	—	—	—	—	—	—	—	—
1. Cleaning mill gearing in motion.	1878, s. 9	—	—	—	—	—	—	—	—	—	—	—	—
2. Remaining between fixed and traversing parts of machine.	1878, s. 9; 1895, s. 9	—	—	—	—	—	—	—	—	—	—	—	—
Y.—Jewish Employers:— Illegal employment by Jew of Jewish woman.	1878, ss. 50, 51	—	—	—	—	—	—	—	*1*	—	—	—	—
Total: Women	.. ..	306	562	414	976	939	25	12	*1,093*	505 14 0	0 10 9	304 6 2	0 6 4
V.—DANGEROUS TRADES, &c.:—													
1. Failure to observe or affix Special Rules.†		53	53	—	53	52	—	1	*64*	44 19 0	0 17 3	22 17 4	0 8 10
WHITE LEAD WORKS:—													
Failure to obtain approval of H.M. Chief Inspector for their method of packing: and depositing white lead elsewhere than under a cover or fan.	1891, ss. 9, 11; 1895, ss. 23, 24, 28.	1	1	—	1	1	—	—	—	2 10 0	2 10 0	1 5 6	1 5 6

* By *Case* is meant each item of prosecution, *e.g.*, a summons for employing three women beyond legal hours is entered as three "cases," but as one "group of prosecutions."

† Only those offences under Special Rules are specified in relation to which proceedings were instituted during 1899 and 1900.

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TABLE 21.—Prosecutions, 1900: Offence and Penalty—*continued.*

Description of Offence.	Statutory Provision in virtue of which Action was taken.	Groups of Prosecutions.*	Number of Cases.*			Result.			Convictions and cases withdrawn on payment of costs in 1899.	Total Amount of Penalties.	Average Penalty in each case where Conviction ensued.	Total Amount of Costs.	Average Costs in each Case where Conviction or Withdrawal on Payment of Costs ensued.
			Factories.	Workshops.	Total.	Convictions.	Cases withdrawn on Payment of Costs.	Cases dismissed, "not proven," &c.					
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)	(11.)	(12.)	(13.)	(14.)
										£ s. d.	£ s. d.	£ s. d.	£ s. d.
V.—DANGEROUS TRADES, &c.—*cont.*:—													
2. Failure to observe or affix Special Rules†—*cont.*													
RED AND ORANGE LEAD WORKS:—													
Allowing red lead to be packed in the room where the manufacture is carried on.		—	—	—	—	—	—	—	1	—	—	—	—
PAINT, COLOUR, &c., WORKS:—													
Failure to provide proper washing conveniences or bath accommodation.		1	1	—	1	1	—	—	1	10 0 0	10 0 0	0 2 6	0 2 6
ENAMELLING IRON PLATE WORKS:—													
Failure to provide overalls and head coverings.		1	1	—	1	1	—	—	—	0 10 0	0 10 0	1 5 6	1 5 6
Failure to adopt perforated benches or tables supplied with fans, &c.		1	1	—	1	1	—	—	—	0 10 0	0 10 0	0 9 6	0 9 6
Re-employment of a person after absence from illness without a medical certificate of recovery.		1	1	—	1	1	—	—	—	0 10 0	0 10 0	1 6 0	1 6 0
EARTHENWARE AND CHINA WORKS:—													
Failure to have persons examined once a month by Certifying Surgeon.		1	1	—	1	1	—	—	1	0 5 6	0 5 6	0 12 0	0 12 0
Re-employment of a person after suspension without written sanction of certifying surgeon.		1	1	—	1	1	—	—	—	1 0 0	1 0 0	1 1 6	1 1 6
Failure to enter in special health register a person employed in dipping house.	1891, ss. 9, 11; 1895, ss. 23, 24, 28	2	2	—	2	2	—	—	—	1 0 0	0 10 0	1 4 6	0 12 3
Failure to provide or wear overalls and head coverings.		5	5	—	5	5	—	—	—	3 2 6	0 12 6	3 3 6	0 12 3
Partaking of food in prohibited places.		—	—	—	—	—	—	—	1	—	—	—	—
Failure to provide or use fans ..		1	1	—	1	1	—	—	10	1 0 0	1 0 0	0 7 6	0 7 6
Failure to provide and maintain proper washing conveniences.		3	3	—	3	2	—	1	4	0 6 0	0 3 0	0 14	0 7 0
Failure to cleanse dipping house boards every week.		1	1	—	1	1	—	—	—	1 0 0	1 0 0	1 3 6	1 3 6
CHEMICAL WORKS:—													
Having dangerous pan less than 3 feet in height above the ground.		1	1	—	1	1	—	—	—	1 0 0	1 0 0	0 8 6	0 8 6
ELECTRIC ACCUMULATOR WORKS:—													
Failure to wear gloves while rubbing.		3	3	—	3	3	—	—	—	0 7 6	0 2 6	1 2 6	0 7 6
BRASS, &c., WORKS:—													
Failure to affix Special Rules ..		—	—	—	—	—	—	—	1	—	—	—	—
Failure to limewash		4	4	—	4	4	—	—	3	14 5 9	3 11 3	1 9 2	0 7 4
Failure to provide proper washing conveniences.		—	—	—	—	—	—	—	—	—	—	—	—
AERATED WATER WORKS:—													
Failure to affix Special Rules ..		1	1	—	1	1	—	—	2	1 0 0	1 0 0	0 13 6	0 13 6
Failure to provide or wear face guards, masks, veils, or gauntlets.		22	22	—	22	22	—	—	35	4 2 6	0 3 9	5 0 8	0 4 7

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TABLE 21.—Prosecutions, 1900: Offence and Penalty—*continued.*

Description of Offence.	Statutory Provision in virtue of which Action was taken.	Groups of Prosecutions.*	Number of Cases.*			Result.			Cases in which Convictions and Cases withdrawn on payment of costs in 1899.	Total Amount of Penalties.	Average Penalty in each Case where Conviction ensued.	Total Amount of Costs.	Average Costs in each Case where Conviction or Withdrawal on Payment of Costs ensued.
			Factories.	Workshops.	Total.	Convictions.	Cases withdrawn on Payment of Costs.	Cases dismissed, "not proven," &c.					
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)	(11.)	(12.)	(13.)	(14.)
										£ s. d.	£ s. d.	£ s. d.	£ s. d.
V.—DANGEROUS TRADES, &c.—*cont.*:—													
1. Failure to observe or affix Special Rules†—*cont.*													
WOOL SORTING WORKS:—													
Having Persian locks taken direct to sorting boards without being opened in room set apart for purpose.	1891, ss. 9, 11; 1895, ss. 23, 24, 28.	—	—	—	—	—	—	—	1	—	—	—	—
Allowing sorting to be carried on over a sorting board, the funnel-shaped opening of which measured less than 10 inches across the top.		1	1	—	1	1	—	—	—	1 0 0	1 0 0	0 11	0 11 0
Allowing sorting to be carried on, the fan being at a standstill.		—	—	—	—	—	—	—	1	—	—	—	—
Allowing draught funnel to become choked with dust.		—	—	—	—	—	—	—	1	—	—	—	—
Discharging dust from extraction shaft into the open air, and not into a properly constructed receptacle.		1	1	—	1	1	—	—	—	1 0 0	1 0 0	0 11 0	0 11 0
Failure to limewash walls and ceilings of sorting room.		1	1	—	1	1	—	—	1	0 10 0	0 10 0	0 6 6	0 6 6
VULCANISING INDIA-RUBBER BY MEANS OF BI-SULPHIDE OF CARBON:—													
Employing young persons in room where bi-sulphide of carbon is used.		—	—	—	—	—	—	—	—	—	—	—	—
Failure to provide or use fan, and failure to have persons examined once a month by Certifying Surgeon.		—	—	—	—	—	—	—	1	—	—	—	—
2. Failure to provide suitable washing conveniences where any poisonous substance is used.	1895, s. 30	—	—	—	—	—	—	—	2	—	—	—	—
3. Giving out work to be done in places which are injurious or dangerous to health.	1895, s. 5	—	—	—	—	—	—	—	—	—	—	—	—
Total: Dangerous Trades, &c.		53	53	—	53	52	—	1	66	44 19 0	0 17 3	22 17 4	0 8 10
VI.—INFECTIOUS DISEASE:—Allowing wearing apparel to be made in places where there is infectious disease.	1895, s. 6	1	—	1	1	1	—	—	—	4 0 0	4 0 0	1 0 0	1 0 0
‡VII.—LAUNDRIES:—													
1. Neglecting to provide, maintain, or use fans or other proper means for regulating temperature in ironing room, or for carrying away steam in washhouse.	1895, s. 22	1	1	—	1	1	—	—	1	0 5 0	0 5 0	0 1 6	0 1 6
2. Failure to separate stoves for heating irons from ironing room, or allowing gas irons emitting noxious fumes to be used.	1895, s. 22	—	—	—	—	—	—	—	—	—	—	—	—
3. Neglecting to keep floors in good condition or properly drained.	1895, s. 22	1	1	—	1	1	—	—	—	0 5 0	0 5 0	0 1 6	0 1 6
Total Laundries	.. ..	2	2	—	2	2	—	—	1	0 10 0	0 5 0	0 3 0	0 1 6

* By *Case* is meant each item of prosecution, *e.g.*, a summons for employing three women beyond legal hours is entered as three "cases," but as one "group of prosecutions."

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‡ The offences tabulated in Classes VII., VIII., and IX. are those special to Laundries, Tenement Factories, and Bakehouses respectively. All other offences in such places are included under the more general headings.

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TABLE 21.—Prosecutions, 1900: Offence and Penalty—*continued.*

Description of Offence.	Statutory Provision in virtue of which Action was taken.	Groups of Prosecutions.*	Number of Cases.*			Result.			Cases in which Convictions and Cases withdrawn on payment of costs in 1899.	Total Amount of Penalties.	Average Penalty in each Case where Conviction ensued.	Total Amount of Costs.	Average Costs in each Case where Conviction or Withdrawal on payment of Costs ensued.
			Factories.	Workshops.	Total.	Convictions.	Cases withdrawn on Payment of Costs.	Cases dismissed, "not proven," &c.					
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)	(11.)	(12.)	(13.)	(14.)
										£ s. d.	£ s. d.	£ s. d.	£ s. d.
VIII.—TENEMENT FACTORIES†—													
1. Neglecting to observe the regulations as to grinding (Schedule I., 1895).	1895, s. 25	—	—	—	—	—	—	—	—	—	—	—	—
2. Neglecting to keep in efficient condition hoisting chains and hooks.	1895, s. 23	—	—	—	—	—	—	—	—	—	—	—	—
3. Neglecting to provide or maintain instantaneous communication between rooms in which work is carried on and engine-room or boiler house.	1895, s. 25	1	1	—	1	1	—	—	—	5 0 0	5 0 0	1 2 0	1 2 0
Total: Tenement Factories ..	.. ..	**1**	**1**	**—**	**1**	**1**	**—**	**—**	**—**	**5 0 0**	**5 0 0**	**1 2 0**	**1 2 0**
IX. BAKEHOUSES†—													
1. Allowing improperly constructed room on level of bakehouse in same building to be used as a sleeping place.	1878, s. 35; 1895, s. 27	—	—	—	—	—	—	—	—	—	—	—	—
2. Using or allowing to be used as a bakehouse a place where sanitary regulations have not been complied with.	1883, ss. 15, 16; 1895, s. 27	1	1	—	1	1	—	—	—	2 0 0	2 0 0	0 2 0	0 2 0
3. Using a place underground as a bakehouse.	1895, s. 27	—	—	—	—	—	—	—	—	—	—	—	—
Total: Bakehouses..	.. ..	**1**	**1**	**—**	**1**	**1**	**—**	**—**	**—**	**2 0 0**	**2 0 0**	**0 2 0**	**0 2 0**
X.—PARTICULARS SECTION†—													
1. Failure to supply sufficient or correct particulars, or to supply them in legal manner.	1895, s. 40	8	20	—	20	20	—	—	34	7 16 0	0 7 10	12 9 6	0 12 6
2. Fraudulently using false indicator, or fraudulently altering automatic indicator.	1895, s. 40	—	—	—	—	—	—	—	—	—	—	—	—
3. Disclosing particulars for the purpose of divulging a trade secret or soliciting a worker to make such disclosure.	1895, s. 40	—	—	—	—	—	—	—	—	—	—	—	—
Total: Particulars Section .	.. ..	**8**	**20**	**—**	**20**	**20**	**—**	**—**	**34**	**7 16 0**	**0 7 10**	**12 9 6**	**0 12 6**
XI.—COTTON CLOTH FACTORIES ACTS and FLAX SPECIAL RULES†—													
1. Exceeding the maximum limit of humidity.	1889, s. 5; 1895, s. 31	1	3	—	3	1	2	—	4	5 0 0	5 0 0	0 19 6	0 6 6
2. Failure to keep instruments in proper order.	1889, s. 7; 1895, s. 31	—	—	—	—	—	—	—	—	—	—	—	—

* By *Case* is meant each item of prosecution, *e.g.*, a summons for employing three women beyond legal hours is entered as three "cases," but as one "group of prosecutions."

† The offences tabulated in Classes VII., VIII., and IX. are those special to Laundries, Tenement Factories, and Bakehouses respectively. All other offences in such places are included under the more general headings.

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TABLE 21.—Prosecutions, 1900: Offence and Penalty—*continued.*

Description of Offence. (1.)	Statutory Provision in virtue of which Action was taken. (2.)	Groups of Prosecutions.* (3.)	Number of Cases.* Factories. (4.)	Workshops. (5.)	Total. (6.)	Result. Convictions. (7.)	Cases with-drawn on Payment of Costs. (8.)	Cases dismissed, "not proven," &c. (9.)	Convictions and cases withdrawn on payment of costs in 1899. (10.)	Total Amount of Penalties. (11.)	Average Penalty in each Case where Conviction ensued. (12.)	Total Amount of Costs. (13.)	Average Costs in each Case where Conviction or Withdrawal on Payment of Costs ensued. (14.)
XI.—COTTON CLOTH FACTORIES ACTS and FLAX SPECIAL RULES—*cont.*:—										£ s. d.	£ s. d.	£ s. d.	£ s. d.
3. Failure to ventilate properly	1889, s. 9; 1895, s. 31; 1897, s. 1	5	5	—	5	2	2	1	—	10 0 0	5 0 0	3 17 6	0 15 1
4. Failure to maintain, affix, or furnish registers of temperatures.	1889, s. 7; 1895, s. 31; 1897, s. 1	—	—	—	—	—	—	—	—	—	—	—	—
5. Failure to give notice *re* artificial humidity.	1889, ss. 8, 11; 1895, s. 31	—	—	—	—	—	—	—	—	—	—	—	—
6. Failure to observe or affix Flax Special Rules:—													
Failure to keep 2 degrees difference between wet and dry bulb thermometers.	1891, ss. 9, 11; 1895, ss. 24, 28	1	1	—	1	1	—	—	—	0 5 0	0 5 0	0 1 6	0 1 6
Failure to record readings of hygrometers.		2	3	—	3	3	—	—	—	1 0 0	0 6 8	0 6 0	0 2 0
Failure to provide or use fans in roughing and sorting rooms.		1	1	—	1	1	—	—	—	0 5 0	0 5 0	0 1 6	0 1 6
7. Producing artificial humidity from impure water.		1	1	—	1	—	1	—	1	—	—	0 5 0	0 5 0
8. Using pipes not as small as practicable or not properly covered.		—	—	—	—	—	—	—	1	—	—	—	—
9. Failure to whitewash outside of roof.	1897, s. 1	1	1	—	1	1	—	—	2	5 0 0	5 0 0	0 8 0	0 8 0
10. Failure to provide proper cloak rooms.		—	—	—	—	—	—	—	—	—	—	—	—
11. Failure to keep clean ducts for introduction of humidified air.		2	2	—	2	—	1	1	—	—	—	0 3 6	1 1 6
Total: Cotton Cloth Factories Acts and Flax Special Rules	.. ..	14	17	—	17	9	6	2	8	21 10 0	2 7 9	6 2 6	0 11 1
XII.—PREVENTION OF CRUELTY TO CHILDREN ACT:—													
1. Failure to send copy of licence to H.M. Inspector.	1894, s. 3	—	—	—	—	—	—	—	—	—	—	—	—
2. Employing a child after the time stated on licence.	1894, s. 3	—	—	—	—	—	—	—	—	—	—	—	—
Total: Prevention of Cruelty to Children Act	.. ..	—	—	—	—	—	—	—	—	—	—	—	—
XIII.—PUBLIC HEALTH ACTS:—Prosecutions undertaken by H.M. Inspectors in default of local authority.	1875, s. 4; 1891, ss. 1, 2, 4; 1895, s. 3	—	—	—	—	—	—	—	—		—	—	—

* By *Case* is meant each item of prosecution, *e.g.*, a summons for employing three women beyond legal hours is entered as three "cases," but as one "group of prosecutions."

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TABLE 21.—Prosecutions, 1900: Offence and Penalty—*continued.*

Description of Offence.	Statutory Provision in virtue of which Action was taken.	Groups of Prosecutions.*	Number of Cases.*			Result.			Convictions and cases withdrawn on payment of costs in 1899.	Total Amount of Penalties.	Average Penalty in each Case where Conviction ensued.	Total Amount of Costs.	Average Costs in each Case where Conviction or Withdrawal on Payment of Costs ensued.
			Factories.	Workshops.	Total.	Convictions.	Cases withdrawn on Payment of Costs.	Cases dismissed, not proven, &c.					
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)	(11.)	(12.)	(13.)	(14.)
										£ s. d.	£ s. d.	£ s. d.	£ s. d.
V.—TRUCK ACTS	1831, 1887, 1896	13	13	13	26	21	—	5	24	19 11 0	6 18 7	12 2 4	0 11 6
F.—EDUCATION ACTS ..	1876, s. 7; 1878, ss. 5, &c.; 1880, s. 4; 1883, s. 14.	1	1	—	1	—	—	1	—	—	—	—	—
GRAND TOTAL		1,369	2,373	914	3,287	2,151	50	86	3,490	2,692 18 11	0 17 1	1,278 6 1	0 8 0
Do. *for 1899*		*1,954*	*2,407*	*1,167*	*3,574*	*3,406*	*84*	*84*	—	*2,503 6 0*	*0 14 8*	*1,419 19 3*	*0 8 2*
Do. *for 1898*		*2,043*	*2,936*	*1,418*	*3,954*	*3,501*	*47*	*106*	—	*2,727 3 7*	*0 15*	*1,519 4 2*	*0 8 6*
Do. *for 1897*		*1,998*	*2,199*	*1,319*	*3,518*	*3,359*	*69*	*90*	—	*2,191 19 10*	*0 13 1*	*1,417 6 10*	*0 8 3*

* By *Case* is meant each item of prosecution, *e.g.*, a summons for employing three women beyond legal hours is entered as three "cases," but as one "group of prosecutions."

NOTES.—Except where the penalty is fixed by the sections which create the offence, prosecutions for "non-conformity with the Act" are taken under section 81 (1878), and for "contravention of the Act" under section 83 (1878), or, in prosecutions under the Cotton Cloth Factories Act, 1889, under section 13 of the latter Act, in addition to the sections which create the offence.

Informations by the occupier against the actual offender are taken under sections 86 and 87 (1878) and section 50 (1895).

Informations against occupiers of print-works and bleaching and dyeing works in respect of period of employment and meal times are also laid under section 40 (1878).

So far as laundries are concerned, prosecutions relating to sanitary provisions, safety, accidents, affixing of notices and abstracts (and the matters to be specified therein), notice of occupation, powers of inspectors, and education of children, are taken under section 22 (1895).

Where the owner of a tenement factory is substituted for the occupier, any summons, notice, or proceeding may also be taken under section 24 (1895).

Where prohibition of employment or modification or limitation of the period of employment is fixed by special rules, informations are also laid under section 28 (1895).

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TABLE 22.—Prosecutions, 1900:

INDUSTRY.	Number of Cases of Prosecution*			Total of Convictions and Cases Withdrawn on Payment of Costs.	CONVICTIONS AND CASES WITHDRAWN										
					I. General.										
					(a) Administration.			(b) Sanitation and Safety.							
	Factories.	Workshops.	Total.		A. Keeping Registers, Sending Notices, &c.	B. Posting of Abstracts, Notices, &c.	C. Obstruction or Personation of H.M. Inspectors.	D. Fencing: Dangerous Machinery, &c.	E. Dangerous Structural Condition.	F. Means of Escape in case of Fire.	G. Investigation of Accidents.	H. Cleanliness, Ventilation, Overcrowding.	I. Temperature.	J. Sanitary Conveniences.
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)	(10.)	(11.)	(12.)	(13.)	(14.)	(15.)
TEXTILE.														
I. Cotton	562	—	562	557	9	2	1	11	—	—	—	10	—	—
II. Wool	22	—	22	19	1	1	—	1	—	—	—	3	—	—
III. Worsted	15	—	15	15	—	—	—	2	—	—	—	—	—	—
IV. Shoddy	3	—	3	3	—	—	—	—	—	1	—	—	—	—
V. Silk	15	2	17	17	3	—	—	—	—	—	—	3	—	—
VI. Horsehair	—	—	—	—	—	—	—	—	—	—	—	—	—	—
VII. Lace	6	—	6	6	1	—	—	—	—	—	—	—	—	—
VIII. Hosiery	27	—	27	27	—	—	—	—	—	—	—	—	—	—
IX. Elastic	—	—	—	—	—	—	—	—	—	—	—	—	—	—
X. Flax	75	—	75	71	1	—	1	—	—	—	—	—	—	—
XI. Hemp	1	—	1	1	—	—	—	—	—	—	—	1	—	—
XII. Jute	14	—	14	12	—	—	—	—	—	—	—	—	—	—
XIII. China Grass	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XIV. Cocoa-nut Fibre	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NON-TEXTILE.														
XV. Flax Scutching	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XVI. Gas	10	—	10	10	—	—	—	—	—	—	—	—	—	—
XVII. Electricity, Generation of	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XVIII. India-rubber and Gutta-percha.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XIX. Wood	83	—	83	78	16	4	—	27	—	—	—	1	—	—
XX. Leather	9	—	9	9	2	2	—	1	—	—	—	—	—	—
XXI. Ivory, Bone, Shell and Jet	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XXII. Clay, Stone, &c.	75	—	75	66	8	4	—	8	—	—	—	—	—	—
XXIII. Glass	33	—	33	33	2	—	2	—	—	—	—	—	—	—
XXIV. Metals, Extraction of	1	—	1	1	—	—	—	—	—	—	—	—	—	—
XXV. Metals, Founding and Conversion of.	147	—	147	144	14	1	—	6	—	—	—	3	—	—
XXVI. Metals, Galvanising, Finishing, &c.	17	—	17	17	—	—	—	—	—	—	—	—	—	—
XXVII. Machines, Appliances, Conveyances, Tools:—														
1. Machines, Engines and Engineering.	85	—	85	85	15	1	—	20	—	—	—	1	—	—
2. Ship and Boat-building.	10	—	10	10	—	—	—	2	—	—	—	—	—	—
3. Other	86	25	111	107	13	15	—	7	—	—	—	1	—	—
XXVIII. Chemicals, &c.	38	—	38	30	6	2	—	6	—	—	—	—	—	—
XXIX. Furniture, &c.	61	24	85	85	8	7	—	6	—	—	—	—	—	—
XXX. Food	182	87	269	267	36	12	—	9	—	—	—	3	—	5
XXXI. Drink:—														
1. Aerated Water	122	2	124	124	14	2	—	2	—	—	—	3	—	—
2. Other	28	1	29	25	2	1	—	—	—	—	—	—	—	—
XXXII. Tobacco, Snuff and Cigars	8	—	8	8	1	—	—	—	—	—	—	1	—	—
XXXIII. Print, Bleach, Dye Works	87	—	87	87	12	4	—	3	—	—	—	1	—	—
XXXIV. Clothing	146	736	882	857	136	36	—	3	—	1	—	14	—	—
XXXV. Jewellery, Plate, Fine Instruments, Fancy Articles, Games.	77	12	89	89	20	7	—	—	—	—	—	1	—	—
XXXVI. Paper, Printing, Stationery, &c.	146	1	147	142	17	3	—	6	—	—	—	13	—	—
XXXVII. Explosives	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XXXVIII. Laundries	41	11	52	48	6	7	—	3	—	—	—	—	—	—
XXXIX. Docks, Wharves and Quays	1	—	1	1	1	—	—	—	—	—	—	—	—	—
XL. Warehouses	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XLI. Construction and Repairing of Buildings (s. 23, ss. 1[b] and 2[c], 1895 Act).	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XLII. Buildings defined by s. 23 (ss. 2[b]) of 1895 Act.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XLIII. Miscellaneous	140	13	153	150	20	10	1	11	—	—	—	8	1	—
TOTAL	2,373	914	3,287	3,201	364	121	5	134	—	2	—	67	1	5
Do. for 1899	*2,407*	*1,167*	*3,574*	*3,490*	*414*	*106*	*15*	*134*	*1*	*1*	—	*52*	—	—
Do. for 1898	*2,236*	*1,418*	*3,654*	*3,548*	*352*	*146*	*7*	*133*	—	*2*	—	*54*	—	*1*

* By *Case* is meant each item of prosecution, *e.g.*, a summons for employing

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Industries and Nature of Offence.

ON PAYMENT OF COSTS (COLUMN 5), CLASSIFIED ACCORDING TO TABLE 21.

II. Children.						III. Young Persons.						IV. Women.															
K. Age, Fitness, &c.	L. Employment at Illegal Times.	M. Occupation.	N. Parental Obligations.	O. Personation.	P. Jewish Employers.	Q. Fitness, &c.	R. Employment at Illegal Times.	S. Occupation.	T. Parental Obligations.	U. Personation.	V. Jewish Employers.	W. Employment at Illegal Times.	X. Occupation.	Y. Jewish Employers.	V. Dangerous Trades, &c.	VI. Infectious Disease.	VII. Laundries.	VIII. Tenement Factories.	IX. Bakehouses.	X. Particulars Section.	XI. Cotton Cloth Factories Acts and Flax Special Rules.	XII. Prevention of Cruelty to Children Act.	XIII. Public Health Acts.	XIV. Truck Acts.	XV. Education Acts.	
(16.)	(17.)	(18.)	(19.)	(20.)	(21.)	(22.)	(23.)	(24.)	(25.)	(26.)	(27.)	(28.)	(29.)	(30.)	(31.)	(32.)	(33.)	(34.)	(35.)	(36.)	(37.)	(38.)	(39.)	(40.)	(41.)		
2	19	18	1	—	—	15	138	1	--	—	—	307	—	—	—	—	—	—	—	9	10	—	—	4	—		
—	—	1	—	—	—	5	2	—	—	—	—	2	—	—	—	—	—	—	—	3	—	—	—	—	—		
—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	3	—	—	—	—	6	—	—	—	1	—		
1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
2	—	—	—	—	—	4	1	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	2	—		
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
1	—	—	—	—	—	1	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	1	—	—	—	—	1	7	—	—	—	—	18	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
4	3	—	—	—	—	6	6	—	—	—	—	45	—	—	—	—	—	—	—	—	5	—	—	—	—		
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	1	—	—	—	—	—	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-	—		
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	3	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
4	—	—	—	—	—	15	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
1	—	—	—	—	—	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
2	4	—	1	—	—	15	2	3	—	—	—	6	—	—	13	—	—	—	—	—	—	—	—	—	—		
7	9	1	—	—	—	9	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
6	14	—	—	—	—	26	63	—	—	—	—	7	—	—	4	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	1	10	—	—	—	—	3	—	—	3	—	—	—	—	—	—	—	—	—	—		
1	—	—	—	—	—	17	30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	2	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	3	—	—	—	—	26	27	—	—	—	—	9	—	—	3	—	—	1	—	—	—	—	—	2	—		
—	—	—	—	—	—	2	5	—	—	—	—	6	—	—	3	—	—	—	—	—	—	—	—	—	—		
—	3	—	—	—	—	38	9	—	—	—	—	14	—	—	—	—	—	—	—	—	—	—	—	—	—		
5	10	—	2	—	—	23	102	—	—	—	—	59	—	—	—	—	—	—	1	—	—	—	—	—	—		
—	—	—	—	—	—	14	40	—	—	—	—	26	—	—	23	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	6	11	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
1	1	—	—	—	—	8	34	—	—	—	—	23	—	—	—	—	—	—	—	—	—	—	—	—	—		
2	6	—	1	—	—	60	200	—	—	—	—	387	—	—	—	1	—	—	—	—	—	—	—	10	—		
1	2	—	—	—	—	42	9	—	—	—	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—		
3	1	—	—	—	—	33	57	—	—	—	—	9	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	—	14	—	—	—	—	14	—	—	—	—	2	—	—	—	—	—	—	2	—		
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
7	6	—	—	—	—	34	35	—	—	—	—	17	—	—	—	—	—	—	—	—	—	—	—	—	—		
50	83	20	5	1	—	416	835	4	—	11	—	964	—	—	52	1	2	1	1	20	15	—	—	21	—		
69	65	6	10	—	—	373	1,009	6	—	3	—	1,092	—	1	66	—	1	—	—	34	8	—	—	24	—		
54	76	4	15	—	—	356	1,087	4	—	—	4	1,062	—	10	51	—	1	1	—	44	17	—	—	66	—		

three women beyond legal hours is entered as three cases.

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TABLE 23.—Prosecutions, 1900:

Industry. (1)	Number of Persons prosecuted. (2)	Groups of Prosecutions.* (3)	Total Number of Cases of Prosecution.* (4)	Result. Convictions. (5)	Cases Withdrawn on Payment of Costs. (6)	Cases Dismissed, or "Not Proven," &c. (7)	Convictions and Cases Withdrawn on Payment of Costs in 1899. (8)	Convictions I. General. (a) Administration. (9)	Convictions I. General. (b) Sanitation and Safety. (10)
TEXTILE.									
I. Cotton	128	176	562	550	7	5	537	12	21
II. Wool	16	17	22	19	—	3	79	2	4
III. Worsted	8	10	15	15	—	—	44	—	2
IV. Shoddy	2	3	3	3	—	—	—	—	1
V. Silk	11	14	17	17	—	—	10	3	3
VI. Horsehair	—	—	—	—	—	—	—	—	—
VII. Lace	5	6	6	5	1	—	9	1	—
VIII. Hosiery	3	7	27	27	—	—	30	—	—
IX. Elastic	—	—	—	—	—	—	—	—	—
X. Flax	11	16	75	71	—	4	28	2	—
XI. Hemp	1	1	1	1	—	—	—	—	1
XII. Jute	14	14	14	12	—	2	17	—	—
XIII. China Grass	—	—	—	—	—	—	—	—	—
XIV. Cocoa-nut Fibre	—	—	—	—	—	—	—	—	—
NON-TEXTILE.									
XV. Flax Scutching	—	—	—	—	—	—	6	—	—
XVI. Gas	2	4	10	10	—	—	—	—	—
XVII. Electricity, Generation of	—	—	—	—	—	—	1	—	—
XVIII. India-rubber and Gutta-percha	—	—	—	—	—	—	24	—	—
XIX. Wood	56	71	83	77	1	5	94	20	28
XX. Leather	7	8	9	9	—	—	9	4	1
XXI. Ivory, Bone, Shell and Jet	—	—	—	—	—	—	2	—	—
XXII. Clay, Stone, &c.	50	63	75	65	1	9	85	12	8
XXIII. Glass	9	21	33	33	—	—	18	4	—
XXIV. Metals, Extraction of	1	1	1	1	—	—	—	—	—
XXV. Metals, Founding and Conversion of	78	101	147	144	—	3	115	15	9
XXVI. Metals, Galvanising, Finishing, &c.	7	9	17	17	—	—	9	—	—
XXVII. Machines, Appliances, Conveyances, Tools:—									
1. Machines, Engines and Engineering.	53	67	85	84	1	—	106	16	21
2. Ship and Boat-building	7	7	10	10	—	—	22	—	2
3. Other	69	85	111	106	1	4	140	28	3
XXVIII. Chemicals, &c.	18	24	38	29	1	8	22	8	6
XXIX. Furniture, &c.	44	56	85	85	—	—	95	15	6
XXX. Food	117	150	269	265	12	2	269	48	17
XXXI. Drink:—									
1. Aerated Water	68	79	124	124	—	—	153	16	5
2. Other	12	16	29	20	5	4	23	3	—
XXXII. Tobacco, Snuff and Cigars	4	5	8	8	—	—	25	1	1
XXXIII. Print, Bleach, Dye Works	20	36	87	87	—	—	64	16	4
XXXIV. Clothing	408	500	882	839	18	25	969	172	18
XXXV. Jewellery, Plate, Fine Instruments, Fancy Articles, Games.	48	65	89	89	—	—	20	27	1
XXXVI. Paper, Printing, Stationery, &c.	72	94	147	140	2	5	242	20	19
XXXVII. Explosives	—	—	—	—	—	—	—	—	—
XXXVIII. Laundries	26	35	52	48	—	4	101	13	3
XXXIX. Docks, Wharves and Quays	1	1	1	1	—	—	1	1	—
XL. Warehouses	—	—	—	—	—	—	—	—	—
XLI. Construction and Repairing of Buildings (s. 23, ss. 1b and 2a, 1895 Act).	—	—	—	—	—	—	—	—	—
XLII. Buildings defined by s. 23 (ss. 2b) of 1895 Act.	—	—	—	—	—	—	—	—	—
XLIII. Miscellaneous	73	105	153	150	—	3	100	31	20
Total	1,449	1,869	3,287	3,151	50	86	3,490	496	269
Total for 1899	1,541	1,954	3,574	3,406	84	84	—	535	188
Total for 1898	1,803	2,043	3,854	3,501	47	106	—	505	191

* By *Case* is meant each item of prosecution, *e.g.*, a summons for employing three women

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Industries and Nature of Offence (Summary).

AND CASES WITHDRAWN ON PAYMENT OF COSTS (COLUMNS 5 AND 6), CLASSIFIED ACCORDING TO TABLE 21.

II. Children. (11)	III. Young Persons. (12)	IV. Women. (13)	V. Dangerous Trades, &c. (14)	VI. Infectious Disease. (15)	VII. Laundries. (16)	VIII. Tenement Factories. (17)	IX. Bakehouses. (18)	X. Particulars Section. (19)	XI. Cotton Cloth Factories Acts and Flax Special Rules. (20)	XII. Prevention of Cruelty to Children Act. (21)	XIII. Public Health Acts. (22)	XIV. Truck Acts. (23)	XV. Education Acts. (24)	INDUSTRY. (1)
														TEXTILE.
40	154	307	—	—	—	—	—	9	10	—	—	4	—	**Cotton.**
1	7	2	—	—	—	—	—	3	—	—	—	—	—	**Wool.**
—	3	—	3	—	—	—	—	6	—	—	—	1	—	**Worsted.**
2	—	—	—	—	—	—	—	—	—	—	—	—	—	**Shoddy.**
2	5	—	—	—	—	—	—	2	—	—	—	2	—	**Silk.**
—	—	—	—	—	—	—	—	—	—	—	—	—	—	**Horsehair.**
1	4	—	—	—	—	—	—	—	—	—	—	—	—	**Lace.**
1	8	18	—	—	—	—	—	—	—	—	—	—	—	**Hosiery.**
—	—	—	—	—	—	—	—	—	—	—	—	—	—	**Elastic.**
7	12	45	—	—	—	—	—	—	5	—	—	—	—	**Flax.**
—	—	—	—	—	—	—	—	—	—	—	—	—	—	**Hemp.**
1	11	—	—	—	—	—	—	—	—	—	—	—	—	**Jute.**
—	—	—	—	—	—	—	—	—	—	—	—	—	—	**China Grass.**
—	—	—	—	—	—	—	—	—	—	—	—	—	—	**Cocoa-nut Fibre.**
														NON-TEXTILE.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	**Flax Scutching.**
—	10	—	—	—	—	—	—	—	—	—	—	—	—	**Gas.**
—	—	—	—	—	—	—	—	—	—	—	—	—	—	**Electricity, Generation of.**
—	—	—	—	—	—	—	—	—	—	—	—	—	—	**India-rubber and Gutta-percha.**
4	26	—	—	—	—	—	—	—	—	—	—	—	—	**Wood.**
1	3	—	—	—	—	—	—	—	—	—	—	—	—	**Leather.**
—	—	—	—	—	—	—	—	—	—	—	—	—	—	**Ivory, Bone, Shell and Jet.**
7	20	6	13	—	—	—	—	—	—	—	—	—	—	**Clay, Stone, &c.**
17	12	—	—	—	—	—	—	—	—	—	—	—	—	**Glass.**
—	1	—	—	—	—	—	—	—	—	—	—	—	—	**Metals, Extraction of.**
20	89	7	4	—	—	—	—	—	—	—	—	—	—	**Metals, Founding and Conversion of.**
—	11	3	3	—	—	—	—	—	—	—	—	—	—	**Metals, Galvanising, Finishing, &c.**
														Machines, Appliances, Conveyances, Tools:—
1	47	—	—	—	—	—	—	—	—	—	—	—	—	1. Machines, Engines and Engineering.
—	8	—	—	—	—	—	—	—	—	—	—	—	—	2. Ship and Boat-building.
3	53	9	3	—	—	1	—	—	—	—	—	2	—	3. Other.
—	7	6	3	—	—	—	—	—	—	—	—	—	—	**Chemicals, &c.**
3	47	14	—	—	—	—	—	—	—	—	—	—	—	**Furniture, &c.**
17	125	59	—	—	—	—	1	—	—	—	—	—	—	**Food.**
														Drink:—
—	54	26	23	—	—	—	—	—	—	—	—	—	—	1. Aerated Water.
—	17	5	—	—	—	—	—	—	—	—	—	—	—	2. Other.
—	6	—	—	—	—	—	—	—	—	—	—	—	—	**Tobacco, Snuff and Cigars.**
2	42	23	—	—	—	—	—	—	—	—	—	—	—	**Print, Bleach, Dye Works.**
9	260	387	—	1	—	—	—	—	—	—	—	10	—	**Clothing.**
3	51	7	—	—	—	—	—	—	—	—	—	—	—	**Jewellery, Plate, Fine Instruments, Fancy Articles, Games.**
4	90	9	—	—	—	—	—	—	—	—	—	—	—	**Paper, Printing, Stationery, &c.**
—	—	—	—	—	—	—	—	—	—	—	—	—	—	**Explosives.**
—	14	14	—	—	2	—	—	—	—	—	—	2	—	**Laundries.**
—	—	—	—	—	—	—	—	—	—	—	—	—	—	**Docks, Wharves and Quays.**
—	—	—	—	—	—	—	—	—	—	—	—	—	—	**Warehouses.**
—	—	—	—	—	—	—	—	—	—	—	—	—	—	**Construction and Repairing of Buildings (s. 23, ss. 1b and 2a, 1895 Act).**
—	—	—	—	—	—	—	—	—	—	—	—	-	—	**Buildings defined by s. 23 (ss. 2b) of 1895 Act.**
13	69	17	—	—	—	—	—	—	—	—	—	—	—	**Miscellaneous.**
159	**1,266**	**964**	**52**	**1**	**2**	**1**	**1**	**20**	**15**	**—**	**—**	**21**	**—**	**Total.**
160	*1,391*	*1,093*	*66*	*—*	*1*	*—*	*—*	*34*	*8*	*—*	*—*	*24*	*—*	*Total for 1899.*
149	*1,451*	*1,072*	*51*	*—*	*1*	*1*	*—*	*44*	*17*	*—*	*—*	*66*	*—*	*Total for 1898.*

beyond legal hours is entered as three "cases," but as one "group of prosecutions."

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TABLE 24.—Prosecutions, 1900:

District. (1.)	Number of Cases of Prosecution.* Factories. (2.)	Workshops. (3.)	Total. (4.)	Total of Convictions and Cases Withdrawn on Payment of Costs. (5.)	CONVICTIONS AND CASES I. General. (a.) Administration. A. Keeping Register, Sending Notices, &c. (6.)	B. Posting of Abstracts, Notices, &c. (7.)	C. Obstruction or Personation of H.M. Inspectors. (8.)	(b.) Sanitation and Safety. D. Fencing; Dangerous Machinery, &c. (9.)	E. Dangerous Structural Condition. (10.)	F. Means of Escape in case of Fire. (11.)	G. Investigation of Accidents. (12.)	H. Cleanliness, Ventilation, Overcrowding. (13.)	I. Temperature. (14.)	J. Sanitary Conveniences. (15.)
1. North London	19	13	32	32	1	—	—	1	—	—	—	—	—	—
2. South London	128	76	204	200	51	4	1	11	—	—	—	2	—	—
3. West London	37	20	57	55	6	2	—	7	—	—	—	2	—	—
3a. Works assigned to Miss Deane	26	35	61	56	5	7	—	—	—	—	—	1	—	—
4. East London	74	80	154	148	15	18	—	12	—	—	—	7	—	—
5. Kent	19	7	26	26	—	1	—	1	—	—	—	—	—	—
6. Southampton	12	26	38	37	11	2	—	2	—	—	—	—	—	—
7. Plymouth	2	8	10	10	—	—	—	—	—	—	—	—	—	—
8. Bristol	45	19	64	57	3	4	—	5	—	—	—	1	—	—
9. Northampton	18	4	22	22	2	—	—	2	—	—	—	3	—	—
10. Norwich	15	28	43	42	8	2	—	2	—	—	—	—	—	—
SOUTHERN DIVISION	395	316	711	685	102	40	1	43	—	—	—	16	—	—
11. Birmingham	119	31	150	145	29	18	—	—	—	—	—	4	—	—
12. Worcester	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13. Wolverhampton	59	6	65	65	7	5	—	—	—	—	—	—	—	—
14. South Staffordshire	30	12	42	42	10	1	—	4	—	—	—	—	—	—
15. North Staffordshire	39	17	56	54	8	1	—	—	—	—	—	1	—	—
16. Leicester	31	1	32	32	10	1	—	1	—	—	—	—	—	—
17. Nottingham	28	7	35	35	8	2	—	—	—	—	—	—	—	—
18. Derby	20	6	26	26	5	1	—	1	—	—	—	—	—	—
19. Lincoln	12	8	20	20	5	2	—	—	—	—	—	—	—	—
20. South Wales and Monmouthshire	101	35	136	132	17	6	—	4	—	—	—	—	—	—
21. North Wales	2	5	7	7	4	—	—	2	—	—	—	—	—	—
MIDLAND DIVISION	441	123	569	558	103	37	—	12	—	—	—	5	—	—
22. Leeds	39	24	63	58	8	2	—	4	—	1	—	1	1	—
23. Sheffield	42	11	53	53	6	1	—	1	—	—	—	1	—	—
24. Huddersfield	32	—	32	29	3	—	—	2	—	—	—	—	—	—
25. Halifax	10	5	15	15	1	—	—	2	—	—	—	1	—	—
26. Bradford	33	6	39	39	—	1	—	7	—	1	—	4	—	—
27. Newcastle	27	10	37	34	8	1	—	—	—	—	—	—	—	—
NORTH EASTERN DIVISION	183	56	239	228	26	5	—	16	—	2	—	7	1	—
28. Manchester	137	16	153	148	19	6	—	12	—	—	—	1	—	—
29. Oldham	256	1	257	257	12	1	—	4	—	—	—	2	—	—
30. Rochdale	184	—	184	184	4	8	—	6	—	—	—	6	—	—
31. Bolton	16	2	18	17	1	—	—	—	—	—	—	6	—	—
32. Cheshire	73	6	79	79	10	1	—	2	—	—	—	12	—	—
33. Liverpool	143	86	229	221	26	9	2	18	—	—	—	5	—	—
34. Blackburn	104	35	139	138	10	1	1	4	—	—	—	—	—	—
35. Preston	7	5	12	9	1	—	—	1	—	—	—	—	—	—
NORTH WESTERN DIVISION	920	151	1,071	1,053	83	26	3	47	—	—	—	32	—	—
36. West Scotland	133	24	157	157	23	4	—	7	—	—	—	2	—	—
37. South West Scotland	3	—	3	3	2	—	—	—	—	—	—	—	—	—
38. South East Scotland	59	46	105	105	13	4	—	—	—	—	—	—	—	—
39. East Scotland	28	13	41	36	3	1	—	1	—	—	—	—	—	—
40. North Scotland	6	—	6	6	—	—	—	—	—	—	—	—	—	—
41. North Ireland	99	107	206	194	7	2	1	1	—	—	—	—	—	—
42. South Ireland	106	73	179	176	2	2	—	7	—	—	—	5	—	5
SCOTLAND AND IRELAND DIVISION.	434	263	697	677	50	13	1	16	—	—	—	7	—	5
UNITED KINGDOM	2,373	914	3,287	3,201	364	121	5	134	—	2	—	67	1	5
Lady Inspectors' Prosecutions (also included in District Summaries above).	135	76	211	197	28	11	—	—	—	—	—	2	—	—

* By *Case* is meant each item of prosecution, *e.g.*, a summons for

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Districts and Nature of Offence

WITHDRAWN ON PAYMENT OF COSTS (COLUMN 5), CLASSIFIED ACCORDING TO TABLE 21.

II. Children.						III. Young Persons.						IV. Women.								X. Particulars Section.		XI. Cotton Cloth Factories Acts and Flax Special Rules.		XII. Prevention of Cruelty to Children Act.	XIII. Public Health Acts.	XIV. Truck Acts.	XV. Education Acts.
K. Age, Fitness, &c. (16.)	L. Employment at Illegal Times. (17.)	M. Occupation. (18.)	N. Parental Obligations. (19.)	O. Personation. (20.)	P. Jewish Employers. (21.)	Q. Fitness, &c. (22.)	R. Employment at Illegal Times. (23.)	S. Occupation. (24.)	T. Parental Obligations. (25.)	U. Personation. (26.)	V. Jewish Employers. (27.)	W. Employment at Illegal Times. (28.)	X. Occupation. (29.)	Y. Jewish Employers. (30.)	V. Dangerous Trades, &c. (31.)	VI. Infectious Disease. (32.)	VII. Laundries. (33.)	VIII. Tenement Factories. (34.)	IX. Bakehouses. (35.)	Textile. (36.)	Non-textile. (37.)	'Cotton Cloth, &c. (38.)	Flax. (39.)	(40.)	(41.)	(42.)	(43.)
1	1	1	—	—	—	6	11	—	—	—	—	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3	6	—	—	—	—	7	61	—	—	—	—	51	—	—	1	—	—	—	—	—	—	—	—	—	—	2	—
—	1	—	—	—	—	16	10	—	—	—	—	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	13	—	—	—	—	30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	2	—	1	—	—	27	32	—	—	—	—	32	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—
—	1	—	—	—	—	4	13	—	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2	—	—	—	—	—	—	8	—	—	—	—	12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—
3	3	—	—	—	—	7	16	—	—	—	—	13	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—
—	—	—	—	—	—	5	7	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	5	—	1	—	—	4	16	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—
9	**10**	**1**	**2**	**—**	**—**	**76**	**189**	**—**	**—**	**—**	**—**	**179**	**—**	**—**	**2**	**—**	**—**	**—**	**1**	**—**	**—**	**—**	**—**	**—**	**—**	**14**	**—**
1	—	—	—	—	—	52	34	—	—	—	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6	7	—	—	—	—	24	10	—	—	—	—	3	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—
2	5	—	—	—	—	8	7	2	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—
—	—	—	—	—	—	7	25	—	—	—	—	1	—	—	11	—	—	—	—	—	—	—	—	—	—	—	—
1	1	—	—	—	—	14	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2	2	—	—	—	—	13	4	—	—	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	1	—	—	—	3	9	—	—	—	—	5	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—
5	—	—	—	—	—	2	4	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2	10	—	1	—	—	16	59	—	—	—	—	14	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
19	**25**	**1**	**1**	**—**	**—**	**139**	**157**	**2**	**—**	**—**	**—**	**87**	**—**	**—**	**16**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**6**	**—**
—	—	—	—	—	—	4	21	—	—	—	—	11	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—
5	2	—	—	—	—	14	16	—	—	—	—	6	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—
2	1	—	—	—	—	6	2	—	—	—	—	8	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—
—	—	1	—	—	—	1	2	—	—	—	—	3	—	—	—	—	—	—	—	3	—	—	—	—	—	1	—
1	—	—	—	—	—	11	4	—	—	—	—	4	—	—	3	—	—	—	—	3	—	—	—	—	—	—	—
1	—	—	—	—	—	2	9	—	—	—	—	12	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—
9	**3**	**1**	**—**	**—**	**—**	**40**	**54**	**—**	**—**	**—**	**—**	**44**	**—**	**—**	**9**	**—**	**—**	**1**	**—**	**9**	**—**	**—**	**—**	**—**	**—**	**1**	**—**
—	2	—	—	—	—	24	42	—	—	—	—	39	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—
2	3	6	—	—	—	13	76	1	—	—	—	137	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3	11	1	1	—	—	8	54	—	—	—	—	75	—	—	2	—	—	—	—	5	—	—	—	—	—	—	—
—	—	5	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—
—	3	2	—	—	—	5	29	—	—	—	—	9	—	—	4	—	—	—	—	2	—	—	—	—	—	—	—
4	7	—	—	—	—	20	73	—	—	—	—	55	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—
—	5	3	—	—	—	1	26	—	—	—	—	78	—	—	—	—	—	—	—	4	—	5	—	—	—	—	—
—	—	—	—	—	—	—	3	—	—	—	—	3	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—
9	**31**	**17**	**1**	**—**	**—**	**71**	**364**	**1**	**—**	**—**	**—**	**396**	**—**	**—**	**11**	**—**	**—**	**—**	**—**	**11**	**—**	**10**	**—**	**—**	**—**	**—**	**—**
—	—	—	—	—	—	33	34	1	—	—	—	48	—	—	1	—	—	—	—	—	—	—	—	—	—	4	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	15	14	—	—	—	—	59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	1	—	3	5	—	—	11	—	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	1	—	1	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	3	—	—	—	—	15	34	—	—	—	—	118	—	—	7	1	—	—	—	—	—	—	—	5	—	—	—
4	1	—	—	—	—	20	44	—	—	—	—	81	—	—	3	—	2	—	—	—	—	—	—	—	—	—	—
4	**5**	**—**	**1**	**1**	**—**	**90**	**131**	**1**	**—**	**11**	**—**	**317**	**—**	**—**	**12**	**1**	**2**	**—**	**—**	**—**	**—**	**—**	**5**	**—**	**—**	**4**	**—**
50	**88**	**26**	**5**	**1**	**—**	**416**	**835**	**4**	**—**	**11**	**—**	**964**	**—**	**—**	**52**	**1**	**2**	**1**	**1**	**20**	**—**	**10**	**5**	**—**	**—**	**21**	**—**
—	1	—	—	—	—	44	36	—	—	—	—	52	—	—	9	—	—	—	—	—	—	—	—	—	—	14	—

employing three women beyond legal hours is entered as three "cases," but as one "group of prosecutions."

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TABLE 25.—Prosecutions, 1900: Districts

District. (1)	Number of Persons prosecuted. (2)	Groups of Prosecutions.* (3)	Total Number of Cases of Prosecutions.* (4)	Result. Convictions. (5)	Cases Withdrawn on Payment of Costs. (6)	Cases Dismissed, "Not Proven," &c. (7)	Convictions and Cases I. General. (a) Administration. (8)	I. General. (b) Sanitation and Safety. (9)	II. Children. (10)	III. Young Persons. (11)
1. North London	17	20	32	32	—	—	1	1	3	17
2. South London	84	111	204	198	2	4	56	13	9	68
3. West London	28	35	57	54	1	2	8	9	1	26
3a. Works assigned to Miss Deane	27	37	61	56	—	5	12	1	—	13
4. East London	97	116	154	148	—	6	33	19	3	59
5. Kent	12	17	26	26	—	—	1	1	1	17
6. Southampton	13	18	38	28	9	1	13	2	2	8
7. Plymouth	6	6	10	10	—	—	—	—	—	2
8. Bristol	28	45	64	56	1	7	7	6	6	23
9. Northampton	19	20	22	21	1	—	2	5	—	12
10. Norwich	27	30	43	42	—	1	10	2	6	20
SOUTHERN DIVISION	**358**	**455**	**711**	**671**	**14**	**26**	**143**	**59**	**31**	**265**
11. Birmingham	86	113	150	143	2	5	47	4	1	86
12. Worcester	—	—	—	—	—	—	—	—	—	—
13. Wolverhampton	40	53	65	65	—	—	12	—	13	34
14. South Staffordshire	29	37	42	42	—	—	11	4	7	17
15. North Staffordshire	35	40	56	53	1	2	9	1	—	32
16. Leicester	16	25	32	32	—	—	11	1	2	18
17. Nottingham	17	26	35	34	1	—	10	—	4	17
18. Derby	18	21	26	25	1	—	6	1	1	12
19. Lincoln	6	12	20	20	—	—	7	—	5	6
20. South Wales and Monmouthshire	85	99	136	131	1	4	23	4	13	75
21. North Wales	3	4	7	7	—	—	4	2	—	1
MIDLAND DIVISION	**335**	**490**	**569**	**552**	**6**	**11**	**140**	**17**	**40**	**296**
22. Leeds	46	54	63	57	1	5	10	7	—	26
23. Sheffield	22	31	53	53	—	—	7	2	7	30
24. Huddersfield	13	18	32	29	—	3	3	2	3	10
25. Halifax	9	11	15	15	—	—	1	3	1	3
26. Bradford	25	30	39	39	—	—	1	12	1	15
27. Newcastle	17	23	37	34	—	3	9	—	1	11
NORTH-EASTERN DIVISION	**132**	**167**	**239**	**227**	**1**	**11**	**31**	**26**	**13**	**94**
28. Manchester	70	87	153	148	—	5	25	13	2	66
29. Oldham	45	70	267	267	—	—	13	6	11	90
30. Rochdale	48	78	184	184	—	—	12	12	16	62
31. Bolton	16	16	18	14	3	1	1	6	5	2
32. Cheshire	44	58	79	79	—	—	11	14	5	34
33. Liverpool	100	130	229	215	6	8	37	23	11	93
34. Blackburn	52	62	139	133	5	1	12	4	8	27
35. Preston	8	9	12	8	1	3	1	1	—	2
NORTH-WESTERN DIVISION	**383**	**505**	**1,071**	**1,038**	**15**	**18**	**112**	**79**	**58**	**376**
36. West Scotland	49	66	157	154	3	—	27	9	—	68
37. South-West Scotland	2	3	3	3	—	—	2	—	—	—
38. South-East Scotland	20	33	105	105	—	—	17	—	—	29
39. East Scotland	20	24	41	36	—	5	4	1	1	19
40. North Scotland	2	3	6	6	—	—	—	—	2	4
41. North Ireland	84	99	206	194	—	12	10	1	3	49
42. South Ireland	64	84	179	165	11	3	4	17	5	64
SCOTLAND AND IRELAND DIVISION	**241**	**312**	**697**	**663**	**14**	**20**	**64**	**26**	**11**	**233**
UNITED KINGDOM	**1,449**	**1,869**	**3,287**	**3,151**	**50**	**86**	**490**	**209**	**159**	**1,266**
Lady Inspectors' Prosecutions (also included in District Summaries above).	**65**	**194**	**211**	**197**	—	**14**	**39**	**2**	**1**	**89**

* By *Case* is meant each item of prosecution, *e.g.*, a summons for

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and Nature of Offence (Summary).

WITHDRAWN ON PAYMENT OF COSTS (COLUMNS 5 AND 6), CLASSIFIED ACCORDING TO TABLE 21.

IV. Women. (12)	V. Dangerous Trades, &c. (13)	VI. Infectious Disease. (14)	VII. Laundries. (15)	VIII. Tenement Factories. (16)	IX. Bakehouses. (17)	X. Particulars Section. (18)	XI. Cotton Cloth Factories Acts and Special Flax Rules. (19)	XII. Prevention of Cruelty to Children Act. (20)	XIII. Public Health Acts. (21)	XIV. Truck Acts. (22)	XV. Education Acts. (23)	DISTRICT. (1)
10	—	—	—	—	—	—	—	—	—	—	—	1. North London.
51	1	—	—	—	—	—	—	—	—	2	—	2. South London.
11	—	—	—	—	—	—	—	—	—	—	—	3. West London.
30	—	—	—	—	—	—	—	—	—	—	—	3a. Works assigned to Miss Deane.
32	1	—	—	—	1	—	—	—	—	—	—	4. East London.
6	—	—	—	—	—	—	—	—	—	—	—	5. Kent.
12	—	—	—	—	—	—	—	—	—	—	—	6. Southampton.
—	—	—	—	—	—	—	—	—	—	8	—	7. Plymouth.
13	—	—	—	—	—	—	—	—	—	2	—	8. Bristol.
3	—	—	—	—	—	—	—	—	—	—	—	9. Northampton.
2	—	—	—	—	—	—	—	—	—	2	—	10. Norwich.
170	2	—	—	—	1	—	—	—	—	14	—	SOUTHERN DIVISION.
7	—	—	—	—	—	—	—	—	—	—	—	11. Birmingham.
—	—	—	—	—	—	—	—	—	—	—	—	12. Worcester.
3	3	—	—	—	—	—	—	—	—	—	—	13. Wolverhampton.
1	—	—	—	—	—	—	—	—	—	2	—	14. South Staffordshire.
1	11	—	—	—	—	—	—	—	—	—	—	15. North Staffordshire.
—	—	—	—	—	—	—	—	—	—	—	—	16. Leicester.
4	—	—	—	—	—	—	—	—	—	—	—	17. Nottingham.
5	1	—	—	—	—	—	—	—	—	—	—	18. Derby.
2	—	—	—	—	—	—	—	—	—	—	—	19. Lincoln.
14	3	—	—	—	—	—	—	—	—	—	—	20. South Wales and Monmouthshire.
—	—	—	—	—	—	—	—	—	—	—	—	21. North Wales.
37	18	—	—	—	—	—	—	—	—	2	—	MIDLAND DIVISION.
11	5	—	—	—	—	—	—	—	—	—	—	22. Leeds.
6	—	—	—	1	—	—	—	—	—	—	—	23. Sheffield.
8	—	—	—	—	—	3	—	—	—	—	—	24. Huddersfield.
3	—	—	—	—	—	3	—	—	—	1	—	25. Halifax.
4	3	—	—	—	—	3	—	—	—	—	—	26. Bradford.
12	1	—	—	—	—	—	—	—	—	—	—	27. Newcastle.
44	9	—	—	1	—	9	—	—	—	1	—	NORTH-EASTERN DIVISION.
39	3	—	—	—	—	—	—	—	—	—	—	28. Manchester.
137	—	—	—	—	—	—	—	—	—	—	—	29. Oldham.
75	2	—	—	—	—	5	—	—	—	—	—	30. Rochdale.
—	—	—	—	—	—	—	3	—	—	—	—	31. Bolton.
9	4	—	—	—	—	2	—	—	—	—	—	32. Cheshire.
55	2	—	—	—	—	—	—	—	—	—	—	33. Liverpool.
78	—	—	—	—	—	4	5	—	—	—	—	34. Blackburn.
3	—	—	—	—	—	—	2	—	—	—	—	35. Preston.
396	11	—	—	—	—	11	10	—	—	—	—	NORTH-WESTERN DIVISION.
48	1	—	—	—	—	—	—	—	—	4	—	36. West Scotland.
—	1	—	—	—	—	—	—	—	—	—	—	37. South-West Scotland.
59	—	—	—	—	—	—	—	—	—	—	—	38. South-East Scotland.
11	—	—	—	—	—	—	—	—	—	—	—	39. East Scotland.
—	—	—	—	—	—	—	—	—	—	—	—	40. North Scotland.
118	7	1	—	—	—	—	5	—	—	—	—	41. North Ireland.
81	3	—	2	—	—	—	—	—	—	—	—	42. South Ireland.
317	12	1	2	—	—	—	5	—	—	4	—	SCOTLAND AND IRELAND.
964	52	1	2	1	1	20	15	—	—	21	—	UNITED KINGDOM.
52	9	—	—	—	—	—	—	—	—	14	—	Lady Inspectors' Prosecutions (also included in District Summaries above).

employing three women beyond legal hours is entered as three cases.

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TABLE 26.—Prosecutions in 1900 in Detail.

General Notes.

In Column 1 Factories and Workshops are distinguished by the letters *F.* and *W.* respectively. The prefixed signs have the following meaning:

* Previous prosecution.

† Prosecution by Lady Inspector.

§ „ „ Inspector under Cotton Cloth Factory Acts or Particulars Section.

In Column 3 the classification of offences is the same as in Table 21.

In Column 4 by "Case" is meant each item of prosecution, *e.g.*, a summons for employing three women beyond legal hours is entered as three cases. The italic letters refer to foot-notes.

I.—NORTH LONDON DISTRICT.

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL.		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
R. A. Yerbury & Sons, 7, West End Lane, Kilburn, *Joiners, F.*	Marylebone (Metropolitan Police Court), February 15.	7. Notifying accident	1	1 0 0	0 6 6
		D. Fencing; Dangerous Machinery, &c.			
Southgate Engineering Co., Ltd., New Southgate, *Engineers, F.*	Edmonton (County), February 23.	1. Failure to fence dangerous machinery.	1	5 0 0	0 13 6
		II.—CHILDREN.			
		K. Age, Fitness, &c. of Children.			
Rosenwald Bros., 4, Warham St., N., *Manufacturers of Steel Springs for Ladies' Dresses, F.*	Worship Street (Metropolitan Police Court), December 11.	1. Under legal age	1	1 0 0	0 10 0
		L. Employment of Children at Illegal Times.			
Bibbey & Co., 44, Wilmer Gardens, Hoxton, *Glass Bottle Manufacturers, F.*	Worship Street (Metropolitan Police Court), September 26.	9. At night	1	1 0 0	0 3 6
		M. Occupation of Children.			
Do. do.	Do.	1. In prohibited industry	1	1 0 0	0 3 6
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
†W. T. Hope & Co., 141-9, City Road, E.C., *Lithographic Printers and Bookbinders, F.*	Worship Street (Metropolitan Police Court), February 13.	Employing young person under 16 without certificate of fitness.	5	2 0 0	1 10 0
Calthorpe Box & Packing Case Co., Ltd., Wharfedale Road, N., *Box Manufacturers, F.*	Clerkenwell (Metropolitan Police Court), October 31.	Do. do.	1	1 0 0	0 14 0
		R. Employment of Young Persons at Illegal Times.			
†Fordham & Co., Lensden Place, Golden Lane, E.C., *Fancy Card Makers and Letterpress Printers, F.*	Clerkenwell (Metropolitan Police Court), January 12.	1. Before or after legal hours ..	5	6 0 0	1 6 0
J. J. Elliott, 5, Percival St., Clerkenwell, *Clockmaker, W.*	Clerkenwell (Metropolitan Police Court), February 2.	Do. do.	1	0 10 0	0 5 0
A. P. Blundell Taylor & Co., 173, Upper Thames Street, E.C., *Letterpress Printers, F.*	Mansion House (City), April 23.	Do. do.	1	0 5 0	0 5 0
Frank Moore, 52, Queen's Road, Watford, *Milliner, W.*	Watford (County), July 3.	Do. do.	1	0 6 6	0 13 6
David Goldstein, 66, Great Garden St., Whitechapel, E., *Coatmaker, W.*	Worship Street (Metropolitan Police Court), July 24.	Do do.	1	3 0 0	0 5 0
Charles Read & Co., 8, Milton Street, E.C., *Packing Case Makers, W.*	Guildhall (City), November 13.	Do. do.	1	1 0 0	0 7 0
Alfred Dunn, Duncan Road, Hackney, N.E., *Cabinetmaker, W.*	North London (Metropolitan Police Court), January 12.	9. At night	1	3 0 0	0 5 0

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

I.—NORTH LONDON DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		IV.—WOMEN. **W. Employment of Women at Illegal Times.**		£ s. d.	£ s. d.
†W. T. Hope & Co., 141-9, City Road, E.C., *Lithographic Printers and Bookbinders, F.*	Worship Street (Metropolitan Police Court), February 13.	1. Before or after legal hours ..	2	—	0 12 0
G. Stone & Co., Ltd., 108, High Street, Shoreditch, E., *Dressmakers, W.*	Worship Street (Metropolitan Police Court), August 17.	Do. do.	3	6 0 0	0 18 0
Marks Cohen, 12, Lombard St., Whitechapel, E., *Tailor, W.*	Do.	Do. do.	1	2 0 0	0 5 0
Theodore Lemke, 51, Devonshire St., Bloomsbury, W.C., *Tailor, W.*	Bow Street (Metropolitan Police Court), December 7.	Do. do.	1	0 5 0	0 5 6
Rachel Rosenthal, 8, St. Mary St., Whitechapel, E., *Dressmaker, W.*	Worship Street (Metropolitan Police Court), March 22.	6. At meal times	1	2 0 6	0 5 0
Alfred Dunn, Duncan Road, Hackney, N.E., *Cabinetmaker, W.*	North London (Metropolitan Police Court), January 12.	9. At night	2	6 0 0	0 10 0

II.—SOUTH LONDON DISTRICT.

		I.—GENERAL. **A. Keeping Registers, Sending Notices, &c.** Failure as regards:—			
George Gilonis, 14, High St., Woolwich, *Tailor, W.*	Woolwich (Metropolitan Police Court), May 23.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	2	6 0 0	6 13 0
Annie Cottis, 97, Western Road, Hove, Sussex, *Dressmaker, W.*	Hove (County), June 18	Do. do.	1	0 4 0	0 6 0
Norris Bros., Mordeu Hill, Lewisham, S.E., *Laundry Occupiers, F.*	Greenwich (Metropolitan Police Court), July 6.	Do. do.	1	1 10 0	0 5 6
Margaret Phillips, 44, Grove Road, Eastbourne, *Dressmaker, W.*	Eastbourne (Borough), July 13.	Do. do.	1	—	0 10 6
Madame Flora, 61 and 63, Grove Road, Eastbourne, *Dressmaker, W.*	Do.	Do. do.	1	—	0 15 6
Edward Duke, 50, Seaside Road, Eastbourne, *Dressmaker, W.*	Do.	Do. do.	1	—	0 8 10
Elisabeth Owen, 41, King's Road, Brighton, *Dressmaker, W.*	Brighton (Borough), July 13.	Do. do.	1a	0 2 6	—
Ada Strong, 23, Clapham Road, S.W., *Dressmaker, W.*	South Western (Metropolitan Police Court), July 27.	Do. do.	1	0 10 0	0 5 0
Petty, Wood & Co., Southwark Bridge Road, S.E., *Preserve Makers, F.*	Southwark (Metropolitan Police Court), August 8.	Do. do.	5	2 10 0	1 7 6
†Barnes & Co., Ltd., Battle Bridge Lane, S.E., *Jam Manufacturers, W.*	Southwark (Metropolitan Police Court), October 25.	Do. do.	14	14 0 0	2 9 0
Ebenezer Roberts, Ltd., 266, Camberwell Road, S.E., *Confectioners, F.*	Lambeth (Metropolitan Police Court), December 28.	Do. do.	8	16 0 0	2 4 0
Spa Road Beverage Co., Loftie St., Bermondsey, S.E., *Mineral Water Makers, W.*	Southwark (Metropolitan Police Court), January 18.	6. Keeping register of accidents and diseases, or keeping it open to inspection.	1	0 10 0	0 2 0
Sylvan Manufacturing Co., Sylvan Grove, Old Kent Road, S.E., *Umbrella Ferrule Makers, F.*	Greenwich (Metropolitan Police Court), April 6.	Do. do.	1	—	5 5 0
John Feaver, Long Walk, Bermondsey, *Tin Box Manufacturer, F.*	Southwark (Metropolitan Police Court), August 15.	Do. do.	1	2 0 0	0 6 0
†Robert White & Sons, Ltd., Albany Road, S.E., *Mineral Water Manufacturers, F.*	Lambeth (Metropolitan Police Court), November 19.	Do. do.	1	2 0 0	0 2 0
Spa Road Beverage Co., Loftie St., Bermondsey, S.E., *Mineral Water Makers, W.*	Southwark (Metropolitan Police Court), January 18.	7. Notifying accident	1	0 10 0	0 5 6
J. Terry & Son, Collingwood St., S.E., *Packing Case Makers, F.*	Southwark (Metropolitan Police Court), July 25.	Do. do.	1	5 0 0	0 5 6

a.—No costs allowed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

II.—SOUTH LONDON DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c.—*cont.*			
		Failure as regards:—			
Poocock Bros., Southwark Bridge Road, S.E., *Bootmakers, F.*	Southwark (Metropolitan Police Court), July 25.	7. Notifying accident	1	5 0 0	0 5 6
Henry Grant & Co., Riley St., Bermondsey, *Tin Box Makers, F.*	Do.	Do. do.	1	5 0 0	0 5 6
Bouillon Fleet Co., Warner Road, Camberwell, S.E., *Aërated Water Manufacturers, F.*	Lambeth (Metropolitan Police Court), July 26.	Do. do.	1	3 0 0	0 5 6
R. Thwaites, Ltd., New Kent Road, S.E., *Aërated Water Manufacturers, F.*	Lambeth (Metropolitan Police Court), August 24.	Do. do.	1	0 10 0	0 5 6
Munns & Son, 217, East St., Walworth, S.E., *Letterpress Printers, F.*	Lambeth (Metropolitan Police Court), October 24.	Do. do.	1*a*	0 5 0	0 5 6
†Robert White & Sons, Ltd., Albany Road, S.E., *Mineral Water Manufacturers, F.*	Lambeth (Metropolitan Police Court), November 19.	Do. do.	2	4 0 0	0 14 0
Donner, Lee & Co., Gravel Lane, Southwark, S.E., *Rabbit Fur Cutters, F.*	Southwark (Metropolitan Police Court), December 18.	8. Notifying cases of anthrax, or of poisoning by lead, phosphorus, arsenic, or mercury.	2*b*	1 0 0	0 4 0
		B.—Posting of Abstracts, Notices, &c.			
Norris Bros., Morden Hill, Lewisham, S.E., *Laundry Occupiers, F.*	Greenwich (Metropolitan Police Court), July 6.	1. Failure to affix abstracts and notices.	1	2 0 0	0 2 0
Knight Bros., 45, Upper Russell St., Brighton, *Cycle Makers, W.*	Brighton (Borough), July 17.	Do. do.	1	0 5 0	0 12 6
W. J. Woods, 9, Clarence St., Richmond, *Confectioner, W.*	Richmond (Borough), August 9.	Do. do.	1	0 10 0	0 9 6
Thomas Danvers, 46, The Vineyard, Richmond, *Upholsterer, W.*	Do.	Do. do.	1	1 0 0	0 9 6
		C. Obstruction or Personation of H.M. Inspectors.			
Henry Hutton, 94, Chatham Road, Battersea, S.W., *Firewood Cutter, W.*	South-Western (Metropolitan Police Court), June 22.	1. Obstruction	1	4 0 0	0 8 0
*Lovibond & Son, Ltd., Greenwich Road, S.E., *Brewers, F.*	Greenwich (Metropolitan Police Court), October 26.	Do. do.	1*c*	20 0 0	10 10 0
		D. Fencing; Dangerous Machinery, &c.			
Malcolmson & Co., Ltd., 67, Brighton Road, Redhill, *Letterpress Printers and Bookbinders, F.*	Reigate (Borough), July 12.	1. Failure to fence dangerous machinery.	1	2 0 0	0 13 6
Courtney & Birkett, Half Tide Quay, Southwick, *Joiners, F.*	Steyning (County), October 29.	Do. do.	1	0 10 0	0 13 0
William Ward, Fenham Road, Peckham, S.E., *Sawmiller, F.*	Lambeth (Metropolitan Police Court), December 28.	Do. do.	1	5 0 0	0 2 0
E. & A. Miles, Ltd., Onslow St., Guildford, *Sawmillers and Wood Turners, F.*	Guildford (Borough), January 29.	2. Penal Compensation in cases where death or injury has resulted from:— Failure to fence machinery.	1	4 3 0	0 17 0
E. Antill & Son, Monnow Road, Bermondsey, *Builders, F.*	Southwark (Metropolitan Police Court), April 11.	Do. do.	1	20 0 0	0 5 6
Francis & Son, Trundley's Lane, Deptford, *Tin Box Makers, F.*	Greenwich (Metropolitan Police Court), April 27.	Do. do.	1*d*	30 0 0	0 5 6

a.—Nominal penalty only asked for, as firm promised to reinstate the boy who had been dismissed.
b.—One summons withdrawn on payment of costs.
c.—At the hearing on October 26th, a penalty of £20 and £10 10*s.* costs was imposed. On appeal by the Firm the decision was reversed.
d.—The injured lad proceeded under the Workmen's Compensation Act for compensation.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

II.—SOUTH LONDON DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
				£ s. d.	£ s. d.
		I.—GENERAL—*cont.*			
		D. Fencing; Dangerous Machinery, &c.—*cont*			
A. Lloyd & Son, Ltd., Mill St., Dockhead, S.E., *Tin Box Makers, F.*	Southwark (Metropolitan Police Court), May 17.	2. Penal Compensation in cases where death or injury has resulted from:—(*a.*) Failure to fence machinery.	1*a*	50 0 0	0 5 6
Metropolitan Gas Meters, Ltd., 62, Glengall Road, S.E., *Gas Meter Manufacturers, F.*	Lambeth (Metropolitan Police Court), July 26.	Do. do.	1	10 0 0	0 5 6
H. Ross & Co., Olmar Wharf, Olmar St., S.E., *Leather Incinerators, F.*	Lambeth (Metropolitan Police Court), October 24.	Do. do.	1	7 3 6	0 6 6
J. Garrett & Son, 17, Balham Hill, S.W., *Joiners, F.*	South-Western (Metropolitan Police Court), November 27.	Do. do.	1*b*	20 0 0	0 6 0
T. S. Marriage & Co., Bell St., Reigate, *Tin Box Makers, F.*	Reigate (Borough), December 20.	Do. do.	1*b*	3 0 0	1 0 0
		E. Cleanliness, Ventilation, Overcrowding.			
James Hitchcock, Sunny Hill Road Streatham, *Letterpress Printer, F.*	South-Western (Metropolitan Police Court), May 31.	1. Failure to limewash factory, &c.	1	5 0 0	0 2 0
Malcolmson & Co., Ltd., 67, Brighton Road, Redhill, *Letterpress Printers and Bookbinders, F.*	Reigate (Borough), July 12.	Do. do.	1	2 0 0	0 16 6
		II.—CHILDREN.			
		K.—Age, Fitness, &c., of Children.			
C. H. Glover & Co., Ltd., Ormside St., S.E., *Packing Case Manufacturers, F.*	Southwark (Metropolitan Police Court), November 1.	3. Without certificate of fitness ..	2	2 0 0	0 12 0
The Natural Food Co., Ltd., 13, Hickman's Folly, Dockhead, S.E., *Glass Manufacturers, F.*	Southwark (Metropolitan Police Court), December 18.	Do. do.	1	2 0 0	0 5 0
		L.—Employment of Children at Illegal Times.			
C. H. Glover & Co., Ltd., Ormside St., S.E., *Packing Case Manufacturers, F.*	Southwark (Metropolitan Police Court), November 1.	8. Otherwise than in morning and afternoon sets or on alternate days.	4	12 0 0	1 4 0
The Natural Food Co., Ltd., 13, Hickman's Folly, Dockhead, S.E., *Glass Manufacturers, F.*	Southwark (Metropolitan Police Court), December 18.	9. At night	1	2 0 0	0 2 0
Do. do.	Do.	12. On Sunday	1	2 0 0	0 2 0
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
Joseph Mead, Ltd., 102, Southwark St., London, S.E., *Bookbinders, F.*	Southwark (Metropolitan Police Court), March 1.	Employing young person under 18 without certificate of fitness.	4	12 0 0	0 16 0
Fremlin Bros., Manchester St., Brighton, *Beer Bottlers, F.*	Brighton (Borough), March 15.	Do. do.	2*c*	—	—
G. E. Highland, Willow Brook Wharf, Peckham, S.E., *Firewood Cutter, F.*	Lambeth (Metropolitan Police Court), March 21.	Do. do.	2	2 0 0	0 12 0
The Natural Food Co., Ltd., 13, Hickman's Folly, Dockhead, S.E., *Glass Manufacturers, F.*	Southwark (Metropolitan Police Court), December 18.	Do. do.	1	2 0 0	0 5 0

a.—The injured lad's father took action for compensation.
b.—Injured person took action for compensation.
c.—Withdrawn.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

II.—SOUTH LONDON DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		B. Employment of Young Persons at Illegal Times.			
Wicks Rotary Type Casting Co., Ltd., 154, Blackfriars Road, S.E., *Type Founders, F.*	Southwark (Metropolitan Police Court), February 8.	1. Before or after legal hours ..	1	0 10 0	0 5 6
G. E. Highland, Willow Brook Wharf, Peckham, S.E., *Firewood Cutter, F.*	Lambeth (Metropolitan Police Court), March 21.	Do. do.	1	1 0 0	0 6 0
E. Lazenby & Son, Ltd., Crimscott St., Bermondsey, S.E., *Potted Food Manufacturers, F.*	Southwark (Metropolitan Police Court), May 4.	Do. do.	4	1 0 0	1 4 0
"D.P." Battery Co., Ltd., Victoria Works, Old Charlton, S.E., *Electric Accumulator Makers, F.*	Woolwich (Metropolitan Police Court), June 6.	Do. do.	2	4 0 0	0 11 0
Edward Duke, 50, Seaside Road, Eastbourne, *Dressmaker, W.*	Eastbourne (Borough), July 13.	Do. do.	3	—	0 11 6
Albert Billett, 27, Richmond Place, Brighton, *Confectioner, W.*	Brighton (Borough), July 13.	Do. do.	1	0 5 0	—
Dussek Bros. & Co., Verney Road, Camberwell, S.E., *Disinfectant Manufacturers, F.*	Lambeth (Metropolitan Police Court), July 26.	Do. do.	3	4 10 0	0 18 0
E. Baker & Co., 106, North Road, Brighton, *Lithographic Printers, F.*	Brighton (Borough), August 22.	Do. do.	1	2 0 0	0 8 6
Dancey & Goodman, 39 & 41, Station Road, Redhill, *Dressmakers, W.*	Reigate (County), August 23.	Do do.	3	1 10 0	1 16 0
Bean, Webley & Co., Long Lane, Bermondsey, S.E., *Letterpress Printers, F.*	Southwark (Metropolitan Police Court), October 18.	Do. do.	2	4 0 0	0 11 0
G. Fleetwood, Manager, employed by Lovibond & Son, Ltd., Greenwich Road, S.E., *Brewers, F.*	Greenwich (Metropolitan Police Court), October 25.	Do. do.	4	4 0 0	1 6 0
*Johnson & Phillips, Victoria Road, Charlton, *Electric Cable Makers, F.*	Woolwich (Metropolitan Police Court), November 16.	Do. do.	4	8 0 0	1 4 0
Gilman & Spencer, Ltd., Gordon's Wharf, Rotherhithe, S.E., *Patent Maltsters, F.*	Southwark (Metropolitan Police Court), December 18.	Do. do.	1	1 0 0	0 9 0
Ebenezer Roberts, Ltd., 266, Camberwell Road, S.E. *Confectioners, F.*	Lambeth (Metropolitan Police Court), December 28.	Do. do.	2	4 0 0	0 12 0
Merser & Sons, 270, Kennington Road, S.E., *Letterpress Printers, F.*	Do.	Do. do.	1	2 0 0	0 6 0
Fremlin Bros., Manchester St., Brighton, *Beer Bottlers, F.*	Brighton (Borough), March 15.	4. Beyond legal hour on half-holiday.	2	1 10 0	0 13 0
Lewis & Sinclair, 40, Haymerle Road, Peckham, S.E., *Fire Extinguishing Apparatus Manufacturers, F.*	Lambeth (Metropolitan Police Court), May 2.	Do. do.	1	2 0 0	0 9 0
Joseph Arnold, 166, Ferndale Road, Brixton, *Bootmaker, W.*	Lambeth (Metropolitan Police Court, May 14.	Do. do.	1	1 0 0	0 5 0
Alexander McNeil, 58, Bridge Road, Battersea, S.W., *Cycle Maker, W.*	South Western (Metropolitan Police Court), June 22.	Do. do.	1	1 0 0	0 5 0
William Barnes, 6, Battersea Rise, S.W., *Cycle Maker, W.*	South Western (Metropolitan Police Court), July 4.	Do. do.	1a	—	—
W. H. Lucas, High St., West Tarring, *Wheelwright, F.*	Worthing (Borough), July 25.	Do. do.	1	0 10 0	0 13 6
Frances Paul, 240, Brockley Road, Brockley, S.E., *Dressmaker, W.*	Greenwich (Metropolitan Police Court), July 26.	Do. do.	1	1 0 0	0 5 0
E. H. Barnsley, 79, Trafalgar St., Brighton, *Electrical Engineer, W.*	Brighton (Borough), August 14.	Do. do.	1b	—	0 11 0
Brighton & Hove General Gas Co., Portslade, *Gas Producers, F.*	Hove (County), August 27.	Do, do.	2	0 2 0	0 19 0
McMurray's Royal Paper Mills, Ltd., Wandsworth, S.W., *Paper Makers, F.*	South Western (Metropolitan Police Court), January 26.	6. At meal times	3	1 0 0	0 16 6

a.—Dismissed. Magistrate held that the cleaning of cycles and lamps was not part of manufacture and not work under the Act, and refused to grant a case, as it was a question of fact and not of law.

b.—Withdrawn on payment of costs.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

II.—SOUTH LONDON DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		R. Employment of Young Persons at Illegal Times—*cont.*			
Wicks Rotary Type Casting Co., Ltd., 154, Blackfriars Road, S.E., *Type Founders, F.*	Southwark (Metropolitan Police Court), February 8.	8. Beyond legal period without interval for meals.	1	0 10 0	0 5 6
Albert Billett, 27, Richmond Place, Brighton, *Confectioner, W.*	Brighton (Borough), July 13.	Do. do.	1	0 2 6	—
C. H. Glover & Co., Ltd., Ormside St., S.E., *Packing Case Manufacturers, F.*	Southwark (Metropolitan Police Court), November 1.	Do. do.	2	6 0 0	0 12 0
John Hart, 64, Napier St., New Cross, S.E., *Tailor, W.*	Greenwich (Metropolitan Police Court), July 26.	9. At night	2	2 0 0	0 10 0
***Mary Christian**, 1, Fell Road, Croydon, *Dressmaker, W.*	Croydon (Borough), August 6.	Do. do.	1	3 0 0	0 9 6
Brighton & Hove General Gas Co., Portslade, *Gas Producers, F.*	Hove (County), August 27.	Do. do.	3	0 3 0	1 18 6
E. & S. Herbert, South Lambeth Road, S.W., *Letterpress Printers, F.*	Westminster (Metropolitan Police Court), September 25.	Do. do.	1	1 0 0	0 8 0
W. E. Nash, 7, Regent Row, Brighton, *Letterpress Printer, F.*	Brighton (Borough), March 6.	10. On Sunday	1	0 15 0	0 14 6
Brighton & Hove General Gas Co., Portslade, *Gas Producers, F.*	Hove (County), August 27.	Do. do.	2	0 11 0	0 19 0
The Natural Food Co., Ltd., 13, Hickman's Folly, Dockhead, S.E., *Glass Manufacturers, F.*	Southwark (Metropolitan Police Court), December 18.	Do. do.	1	2 0 0	0 2 0
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
Helen Moody, 297, Queen's Road, Battersea, S.W., *Dressmaker, W.*	South Western (Metropolitan Police Court), June 22.	1. Before or after legal hours ..	1	1 0 0	0 5 0
Edith Lockwood, 390, Brixton Hill, S.W., *Milliner, W.*	South Western (Metropolitan Police Court), July 4th.	Do. do.	1	0 10 0	0 5 0
Petty, Wood & Co., Southwark Bridge Road, S.E., *Preserve Makers, F.*	Southwark (Metropolitan Police Court), August 8.	Do. do.	2	2 0 0	0 11 0
G. Cooper & Co., Coburg Road, S.E., *Shirt and Collar Makers, F.*	Lambeth (Metropolitan Police Court), July 6.	?. Before or after legal hours in business of, but outside, the factory or workshop when employed therein before and after dinner hour.	2	3 0 0	0 4 0
Helen Moody, 297, Queen's Road, Battersea, S.W., *Dressmaker, W.*	South Western (Metropolitan Police Court), June 22.	4. Beyond legal hour on half-holiday.	1	0 10 0	0 2 0
***W. Tyrell**, 80, High Road, Streatham, S.W., *Dressmaker, W.*	Do.	Do. do.	2	6 0 0	0 10 0
Elizabeth King, 282, Brixton Hill, S.W., *Dressmaker, W.*	South Western (Metropolitan Police Court), July 4.	Do. do.	1	0 10 0	0 5 0
Madame Flora, 61 and 63, Grove Road, Eastbourne, *Dressmaker, W.*	Eastbourne (Borough), July 13.	Do. do.	2	—	1 5 0
Knight & Wakeford, 28, Western Road, Brighton, *Dressmakers, W.*	Brighton (Borough), July 13.	Do. do.	2	0 7 6	0 16 0
Frances Paul, 240, Brockley Road, Brockley, S.E., *Dressmaker, W.*	Greenwich (Metropolitan Police Court), July 26.	Do. do.	4	4 0 0	1 0 0
Emily Cole, 88, Brockley Road, S.E., *Dressmaker, W.*	Do.	Do. do.	4	—	1 0
Lucy Amott, 41, Western Road, Brighton, *Dressmaker, W.*	Brighton (Borough), August 14.	Do. do.	2	1 0 0	1 7 0
W. P. Wigelsworth, 39 and 40, Preston St., Brighton, *Dressmaker, W.*	Do.	Do. do.	2	1 0 0	1 7 0
Pauline Blanchard, 14, Forthbridge Road, Battersea, *Dressmaker, W.*	South Western (Metropolitan Police Court), September 13.	Do. do.	1	0 0 6	0 2 0

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

II.—SOUTH LONDON DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		IV.—WOMEN—*cont.*		£ s. d.	£ s. d.
		W. Employment of Women at Illegal Times—*cont.*			
McMurray's Royal Paper Mills, Ltd., Wandsworth, S.W., *Paper Makers, F.*	South Western (Metropolitan Police Court), January 26.	6. At meal times	3	1 0 0	0 16 6
G. Cooper & Co., Coburg Road, S.E., *Shirt and Collar Makers, F.*	Lambeth (Metropolitan Police Court), July 6.	Do. do.	6	9 0 0	1 13 0
Corite Syndicate Ltd., 3, Flockton St., Bermondsey, S.E., *Wood Wool Rope Manufacturers, F.*	Southwark (Metropolitan Police Court), May 10.	9. At night	2	4 0 0	0 11 0
*W. Tyrell, 80, High Road, Streatham, S.W., *Dressmaker, W.*	South Western (Metropolitan Police Court), June 22.	Do. do.	2	6 0 0	0 10 0
Ethelina Wickinden, 159, High St., Croydon, *Dressmaker, W.*	Croydon (Borough), July 11.	Do. do.	4	2 0 0	1 10 0
G. D. Barker & Co., 48, Western Road, Brighton, *Dressmakers, W.*	Brighton (Borough), July 13.	Do. do.	1	0 5 0	—
Hannington, Ltd., 4, North Street, Brighton, *Dressmakers, W.*	Brighton (Borough), August 14.	Do. do.	2	1 0 0	1 7 0
R. Thwaites, Ltd., New Kent Road, S.E., *Aërated Water Manufacturers, F.*	Lambeth (Metropolitan Police Court), August 24.	10. On Sunday	4	1 0 0	1 2 0
		V.—DANGEROUS TRADES, &c.			
B. Hedger, West St., Carshalton, Aërated Water Bottler, employed by J. F. Phillips & Co., Grove Road, Sutton, *Mineral Water Manufacturers, F.*	Epsom (Borough), July 23.	1. Failure to observe or affix Special Rules. Aërated water:— Failure to provide or wear face guards, masks, veils, or gauntlets.	1	0 10 6	0 9 6
Sarah Tunbridge, Datchlor Place, Peckham, S.E., *Laundry Occupier, F.*	Lambeth (Metropolitan Police Court), March 21.	**XIV.—TRUCK ACTS.**	2	0 10 0	0 11 0

III.—WEST LONDON DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
General Engineering Co., Ltd., 2 & 4, Penywern Road, Earl's Court, S.W., *Engineers, F.*	West London (Metropolitan Police Court), December 1.	1. Notification of commencement of occupation.	1	1 0 0	0 4 3
†W. Straker, 190-2, Edgware Road, W., *Bookbinder, F.*	Marylebone (Metropolitan Police Court), February 27.	3. Keeping register of children and young persons, &c.	1	0 10 0	0 9 0
Southwood, Smith & Co., Ltd., Bream's Buildings, Fetter Lane, E.C., *Printers, &c., F.*	Mansion House (City), March 1.	Do. do.	1	0 5 0	0 5 0
James Ince, 156, Oxford St., W., *Furrier, W.* ..	Marlborough Street (Metropolitan Police Court), November 29.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	2	2 0 0	0 10 0
Joseph Dorey & Co., Distillery Road, Brentford, *Sawmillers, F.*	Brentford (County), November 26.	7. Notifying accident	1	—	2 0 0

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

III.—WEST LONDON DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		B. Posting of Abstracts, Notices, &c.			
Pierre Wille, 177, Sloane Street, S.W., *Dressmaker, W.*	Westminster (Metropolitan Police Court), February 2.	1. Failure to affix abstracts and notices.	1	0 10 0	0 2 0
J. D. F. Andrews & Co., Ltd., Railway Arches, Putney Bridge, S.W., *Electrical Fittings Manufacturers, F.*	West London (Metropolitan Police Court), December 18.	Do. do.	1	1 0 0	0 5 0
		D. Fencing; Dangerous Machinery, &c.			
Wilkinson Sword Co., Ltd., Oakley Works, King's Road, Chelsea, S.W., *Sword Manufacturers, F.*	Westminster (Metropolitan Police Court), June 27.	1. Failure to fence dangerous machinery.	1	3 0 0	0 5 6
Mary Ann Tollemache, 75, South Row, North Kensington, *Laundress, F.*	Marylebone (Metropolitan Police Court), November 26.	Do. do.	1	4 0 0	0 15 0
General Engineering Co., Ltd., 3 and 4, Penywern Road, Earl's Court, S.W., *Engineers, F.*	West London (Metropolitan Police Court), December 1.	Do. do.	1	0 10 0	0 4 3
J. D. F. Andrews & Co., Ltd., Railway Arches, Putney Bridge, S.W., *Electrical Fittings Manufacturers, F.*	West London (Metropolitan Police Court), December 18.	Do. do.	1	5 0 0	0 4 0
Thomas Hiscock, 181, High St., Hounslow, *Sawmiller, F.*	Brentford (County), December 20.	Do. do.	2	2 1 0	1 1 0
J. & H. Gwynne, Ltd., Queen's Road, Hammersmith, *Engineers, F.*	West London (Metropolitan Police Court), November 13.	2. Penal Compensation in cases where death or injury has resulted from :— Failure to fence machinery.	1a	5 0 0	0 7 0
		E. Cleanliness, Ventilation, Overcrowding.			
Wilkinson & Son, Tottenham Mews, Tottenham St., *Brass Founders, F.*	Marlborough Street (Metropolitan Police Court), October 1.	1. Failure to limewash factory, &c.	1	—	0 6 6
Messrs. Jay, Ltd., 163, Regent St., W., *Furriers, W.*	Marlborough Street (Metropolitan Police Court), November 29.	5. Allowing workshop to be overcrowded.	1	3 0 0	0 5 0
		II.—CHILDREN.			
		L. Employment of Children at Illegal Times.			
†Maple & Co., Ltd., Grafton St., Tottenham Court Road, W., *Upholsterers, W.*	Bow Street (Metropolitan Police Court), April 10.	8. Otherwise than in morning or afternoon sets or on alternate days.	1	0 10 0	0 5 6
Newell & Fewkes, Dairy Meadow, Southall, *Brickmakers, F.*	Brentford (County), November 15.	Do. do.	1	—	—
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
†W. Straker, 190-2, Edgware Road, *W., Bookbinder, F.*	Marylebone (Metropolitan Police Court), February 27.	Employing young person under 16 without certificate of fitness.	2	1 0 0	0 4 0
Southwood, Smith & Co., Ltd., Bream's Buildings, Fetter Lane, E.C., *Printers, &c., F.*	Mansion House (City), March 1.	Do. do.	2	0 10 0	0 10 0
Mornington & Weston, Bayham Place, Camden Town, N.W., *Pianoforte Makers, F.*	Clerkenwell (Metropolitan Police Court), March 27.	Do. do.	2	3 0 0	0 11 0
†Maple & Co., Ltd., Beaumont Place, Tottenham Court Road, W., *Upholsterers, &c., F.*	Bow Street (Metropolitan Police Court), April 10.	Do. do.	6	3 0 0	1 13 0

a.—Small penalty, on the ground that the injured person had been negligent, and that the firm had continued to employ him, and would continue to do so.

b.—Dismissed. Witness contradicted previous statement.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

III.—WEST LONDON DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		Q. Fitness, &c.—*cont.*			
H. J. Fletcher & Co., 161, City Road, N., *Pianoforte Manufacturers, F.*	Worship Street (Metropolitan Police Court), April 24.	Employing young person under 16 without certificate of fitness.	2	1 0 0	0 11 0
Curry & Paxton, 195-199, Great Portland St., London, W., *Opticians, F.*	Marlborough Street (Metropolitan Police Court), May 23.	Do. do.	2	2 0 0	0 10 0
		R. Employment of Young Persons at Illegal Times.			
Henry Lovibond & Sons, Ltd., Lillie Road, Fulham, *Brewers, F.*	West London (Metropolitan Police Court), April 10.	1. Before or after legal hours.	3	6 0 0	0 16 0
J. T. Greenrod & Son, Netley Road, West Brentford, *Pottery Manufacturers, F.*	Brentford (County), October 4.	Do. do.	1*a*	—	—
Henry Harvey, 40, High St., High Wycombe, *Dressmaker, W.*	Chepping Wycombe (Borough), October 27.	Do. do.	2	—	1 11 0
W. & E. W. Johnson, West End Road, High Wycombe, *Chair Manufacturers, W.*	Do.	Do. do.	1	—	0 19 0
H. G. Banks, 134, Wardour St., W., *Lithographic Printer, F.*	Marlborough Street (Metropolitan Police Court), November 7.	Do. do.	1	2 0 0	0 5 0
Madam Defalco, 78, Seymour St., N.W., *Laundress, W.*	Clerkenwell (Metropolitan Police Court), April 3.	5. Beyond legal number of hours in laundries	1	1 0 0	0 5 0
General Engineering Co., Ltd., 2 and 4, Penywern Road, Earls Court, S.W., *Engineers, F.*	West London (Metropolitan Police Court), December 1.	9. At night	2	1 0 0	0 8 0
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
James Chamberlain, 142, Brompton Road, S.W., *Dressmaker, W.*	Westminster (Metropolitan Police Court), February 2.	1. Before or after legal hours ..	1	0 5 0	0 5 0
Pierre Wille, 177, Sloane St., S.W., *Dressmaker, W.*	Do.	Do. do.	1	0 10 0	0 5 0
Henry Harvey, 40, High St., High Wycombe, *Dressmaker, W.*	Chepping Wycombe (Borough), October 27.	Do. do.	1*b*	—	0 15 0
Fred. Nims, 9, Carburton St., Marylebone, W., *Tailor, W.*	Marlborough Street (Metropolitan Police Court), July 5.	4. Beyond legal hour on half holiday.	2	2 0 0	0 10 0
† G. Woolfe, 2, Naylor's Yard, Beak St., W., *Tailor, W.*	Marlborough Street (Metropolitan Police Court), October 18.	6. At meal times.	6	0 15 0	1 10 0

IIIa.—WORKS ASSIGNED TO MISS DEANE.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
† John Rawson, 46, Packington Road, South Acton, *Laundry Occupier, W.*	West London (Metropolitan Police Court), March 1.	1. Notification of commencement of occupation.	1	3 0 0	0 10 0
†Charles Lyng, 16, South Row, Kensal Town, *Laundry Occupier, F.*	Marylebone (Metropolitan Police Court), November 28.	Do. do.	1	2 0 0	0 2 0
† Clara Pitkin, 9, Rostrevor Mansions, Fulham, *Dressmaker, W.*	West London (Metropolitan Police Court), December 21.	Do do.	1	5 0 0	0 2 0

a.—Dismissed. The young person contradicted his previous statement.
b.—Withdrawn on payment of costs.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

IIIa.—WORKS ASSIGNED TO MISS DEANE—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c. —*cont.*			
		Failure as regards :—			
† British Henrici Laundry Machinery Co., Ltd., 635B, Fulham Road, S.W., *Laundry Occupiers, F.*	West London (Metropolitan Police Court), July 23.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	2*a*	—	—
† British Henrici Laundry Machinery Co., Ltd., 635B, Fulham Road, S.W., *Laundry Occupiers, F.*	West London (Metropolitan Police Court), July 30.	Do. do.	2*b*	—	—
† A. Hutchins, 9, Packington Road, South Acton, *Laundry Occupier, F.*	West London (Metropolitan Police Court), March 1.	6. Keeping register of accidents and diseases, or keeping it open to inspection.	1	3 0 0	0 10 6
† Frederick Swaine, 77, South Row, Westbourne Park, W., *Laundry Occupier, F.*	Do.	7. Notifying accident	1	3 0 0	0 10 6
		B. Posting of Abstracts, Notices, &c.			
† Booth & Dash, 48, Strafford Road, South Acton, *Laundry Occupiers, W.*	Do.	1. Failure to affix abstracts and notices.	1	2 0 0	0 10 6
† Arthur Dimbleby, 68, Lancefield St., Kensal Town, W., *Laundry Occupier, W.*	West London (Metropolitan Police Court), October 18.	Do. do.	1	2 0 0	0 2 0
† Catherine Edwards, 25, South Row, Kensal Town, W., *Laundress, W.*	Marylebone (Metropolitan Police Court), November 28.	Do. do.	1	1 10 0	0 2 0
† Eliza Ewins, 27, South Row, Kensal Town, W., *Laundress, W.*	Do.	Do. do.	1	1 0 0	0 2 0
† Clara Pitkin, 57, Chesilton Road, Fulham, W., *Dressmaker, W.*	West London (Metropolitan Police Court), December 21.	Do. do.	1	2 0 0	0 2 0
† A. Hutchins, 9, Packington Road, South Acton, *Laundry Occupier, F.*	West London (Metropolitan Police Court), March 1.	2. Failure to specify on notice the period of employment, meals, &c.	1	2 0 0	0 10 6
† Sarah Stanley, 21, South Row, Kensal Town, W., *Laundress, F.*	Marylebone (Metropolitan Police Court), November 28.	Do. do.	1	2 0 0	0 12 6
		E. Cleanliness, Ventilation, Overcrowding.			
† Leonie Duboc, 8, Clifford St., W., *Dressmaker, W.*	Marlborough Street (Metropolitan Police Court), July 25.	5. Allowing workshop to be overcrowded, &c.	1	5 0 0	0 2 0
		III.—YOUNG PERSONS.			
		B. Employment of Young Persons at Illegal Times.			
† Reginald Kelsom, 44, South Row, Kensal New Town, *Laundry Occupier, W.*	West London (Metropolitan Police Court), October 18.	1. Before or after legal hours.	1	2 0 0	0 12 6
† London & Brighton Laundries, Ltd., Eton Laundry, Orchard Road, Shepherd's Bush, W., *Laundry Occupiers, F.*	West London (Metropolitan Police Court), March 1.	5. Beyond legal number of hours in laundries.	2	6 0 0	2 2 0
† F. A. Baldwin & Co., Empire Steam Laundry, The Steyne, Acton, *Laundry Occupiers, F.*	West London (Metropolitan Police Court), March 29.	Do. do.	5	6 0 0	1 4 0
• † London & Brighton Laundries, Ltd., Orchard Road, Shepherd's Bush, W., *Laundry Occupiers, F.*	West London (Metropolitan Police Court), August 17.	Do. do.	1	3 0 0	0 5 6
† Woolland Bros., Lowndes Terrace, Knightsbridge, W., *Dressmakers, W.*	Westminster (Metropolitan Police Court), July 21.	8. Beyond legal period without interval for meals.	1	2 0 0	0 4 0
Do. do.	Do.	9. At night	2	10 0 0	0 11 0
† Russell & Allen, Old Bond St., W., *Dressmakers, W.*	Marlborough Street (Metropolitan Police Court), June 27.	11. On statutory holiday	1	2 0 0	0 5 6

a—First case dismissed because evidence of witness did not bear out statements made by her on written declaration. Second case, dismissed on technical grounds; fresh informations laid.

b.—Dismissed. Evidence of witnesses did not support their statement made on written declaration.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

IIIa.—WORKS ASSIGNED TO MISS DEANE—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		IV.—WOMEN.		£ s. d.	£ s. d.
		W. Employment of Women at Illegal Times.			
† Snell & Power, 5, Clifford St., W., *Dressmakers, W.*	Marlborough Street (Metropolitan Police Court), July 26.	1. Before or after legal hours ..	3	6 0 0	0 15 0
† Charles Linton, 12, South Road, Kensal Town, W., *Laundry Occupier, W.*	Marylebone (Metropolitan Police Court), November 28.	Do. do.	2	1 10 0	0 16 0
*† Paquin, Ltd., 11, Berkeley St., W., *Dressmakers, W.*	Marlborough Street (Metropolitan Police Court), June 27.	4. Beyond legal hour on half holiday.	2	6 0 0	0 11 0
† Marie Christ, 7, Blandford St., Marylebone, W., *Dressmaker, W.*	Marylebone (Metropolitan Police Court), June 29.	Do. do.	1a	—	—
† Madam Watson, 5, Grafton St., W., *Dressmaker, W.*	Marlborough Street (Metropolitan Police Court), July 13.	Do. do.	4	4 0 0	1 0 0
† London & Brighton Laundries, Ltd., Eton Laundry, Orchard Road, Shepherd's Bush, W., *Laundry Occupiers, F.*	West London (Metropolitan Police Court), March 1.	5. Beyond legal number of hours in laundries.	1	3 0 0	1 1 0
† F. A. Baldwin & Co., Empire Steam Laundry, The Steyne, Acton, *Laundry Occupiers, F.*	West London (Metropolitan Police Court), March 29.	Do. do.	1	1 10 0	0 5 6
*† London & Brighton Laundries, Ltd., Orchard Road, Shepherd's Bush, W., *Laundry Occupiers, F.*	West London (Metropolitan Police Court), August 17.	Do. do.	1	3 0 0	0 5 6
† Charles Linton, 12, South Row, Kensal Town, W., *Laundry Occupier, F.*	Marylebone (Metropolitan Police Court), November 28.	Do. do.	1	5 0 0	0 8 0
† Leonie Duboc, 8, Clifford St., W., *Dressmaker, W.*	Marlborough Street (Metropolitan Police Court), July 25.	6. At meal times	2	4 0 0	0 11 0
† Shaftesbury Laundry Co., Ltd., Shaftesbury Road, South Acton, *Laundry Occupiers, F.*	West London (Metropolitan Police Court), May 26.	8. Beyond legal period without interval for meals.	2	1 0 0	0 11 0
† Charles Linton, 12, South Row, Kensal Town, W., *Laundry Occupier, F.*	Marylebone (Metropolitan Police Court), November 28.	Do. do.	1	5 0 0	0 8 0
† Spencer, Turner & Boldero, 61, Lisson Grove, N.W., *Dressmakers, W.*	Marylebone (Metropolitan Police Court), July 19.	9. At night	5	10 0 0	1 6 0
† Woolland Bros., Lowndes Terrace, Knightsbridge, W., *Dressmakers, W.*	Westminster (Metropolitan Police Court), July 21.	Do. do.	3	9 0 0	0 16 0
† Russell & Allen, Old Bond St., W., *Dressmakers, W.*	Marlborough Street (Metropolitan Police Court), June 27.	11. On statutory holiday	2	3 0 0	0 11 0

IV.—EAST LONDON DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
John Alexander, 33, Rhodeswell Road, E., *Tailor, W.*	Thames (Metropolitan Police Court), May 16.	1. Notification of commencement of occupation.	1	3 0 0	0 6 0
Israel Hershkowits, 111, Commercial Road, E., *Tailor, W.*	Thames (Metropolitan Police Court), June 27.	Do. do.	1	2 0 0	0 6 0
V. A. Hallpike, Mare St., Hackney, N.E., *Pianoforte Movement Manufacturer, F.*	North London (Metropolitan Police Court), March 23.	3. Keeping register of children and young persons, &c.	1	1 0 0	0 6 0
Sarah Goldblatt, 67, St. Georges St., E., *Boot Manufacturer, W.*	Thames (Metropolitan Police Court), May 16.	Do. do.	1	2 0 0	0 6 0
H. Lottery & Co., Walthamstow, E., *Clothing Manufacturers, F.*	Stratford (County), June 16.	Do. do.	1	2 0 0	0 14 0

a Dismissed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

IV.—EAST LONDON DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c.—*cont.*			
		Failure as regards:—			
Alexander Gluckstein, 76, Cannon St. Road, E., *Tailor, W.*	Thames (Metropolitan Police Court), June 27.	3. Keeping register of children and young persons, &c.	1	1 0 0	0 10 0
Harris Cohen, 22, Little Alie St., E., *Tailor, W.*	Thames (Metropolitan Police Court), September 5.	Do. do.	1	2 0 0	0 6 0
Hollington Bros., 14, High St., Whitechapel, *Clothiers, W.*	Thames (Metropolitan Police Court), November 27.	Do. do.	1*a*	—	—
Taylor Bros., Ltd., Brick Lane, E., *Chocolate Makers, F.*	Worship Street (Metropolitan Police Court), November 28.	Do. do.	1	2 0 0	0 6 6
Menkenick, White & Co., Ltd., 3, Montague Place, Poplar, E., *Clothing Manufacturers, W.*	Thames (Metropolitan Police Court), May 16.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	1	4 0 0	0 16 0
Albert Hein, 49, Richard St., E., *Tailor, W.* ..	Thames (Metropolitan Police Court), June 27.	Do. do.	1	2 0 0	0 10 0
Lazarus Hilman, 50, Settles St., E., *Tailor, W.*	Do.	Do. do.	1	3 0 0	0 6 0
Johanna Klagge, 43, Bedford St., E., *Tailoress, W.*	Thames (Metropolitan Police Court), September 5.	Do. do.	1	0 1 0	0 4 0
Raphael Phillips, 47, Tenter St. South, E., *Tailor, W.*	Thames (Metropolitan Police Court), November 27.	Do. do.	2*b*	—	—
Jacob Greenbaum, 8A, Little Alie St., E., *Tailor, W.*	Do.	Do. do.	1	0 1 0	0 2 0
Benjamin Hyamovitch, 19, Fieldgate St., E., *Machinist, W.*	Thames (Metropolitan Police Court), December 18.	Do. do.	1	1 10 0	0 6 0
H. Everitt & Sons, Hythe Hill Colchester, *Builder, F.*	Colchester (Borough), October 16.	7. Notifying accident	1	—	0 17 0
		B. Posting of Abstracts, Notices, &c.			
Barnett Millstein, 58, Tenter St., E., *Tailor, W.*	Thames (Metropolitan Police Court), April 25.	1. Failure to affix abstracts and notices.	1	2 0 0	0 2 0
Morris Cohen, 67, Sidney St., E., *Tailor, W.* ..	Do.	Do. do.	1	2 0 0	0 2 0
Rose Cohl, 131, Whitechapel Road, E., *Milliner, W.*	Thames (Metropolitan Police Court), May 16.	Do. do.	1	2 0 0	0 2 0
R. Abrahams, 28, Commercial Road, E., *Boot Manufacturer, W.*	Do.	Do. do.	1	2 0 0	0 2 0
Rebecca Galesworthy, 24, Glaskin Road, N.E., *Dressmaker, W.*	North London (Metropolitan Police Court), May 18.	Do. do.	1	0 10 0	0 10 0
Marks Dobinsky, 4, Tenter Buildings, E., *Capmaker, W.*	Thames (Metropolitan Police Court), June 6.	Do. do.	1	2 0 0	0 2 0
Solomon Sugar, 51, Grove St., E., *Tailor, W.* ..	Do.	Do. do.	1	2 0 0	0 2 0
Harris Berger, 124, Oxford St., E., *Tailor, W.*	Thames (Metropolitan Police Court), June 27.	Do do.	1	2 0 0	0 2 0
Isaac Blondin, 4, Johnson St., E. *Tailor, W.* ..	Do.	Do. do.	1	2 0 0	0 2 0
Wm. Ely, Southminster, *Coach Builder, W.* ..	Latchingdon (County), June 30.	Do. do.	1	0 10 0	0 9 6
Abraham Stern, 28, Whitechapel Road, E., *Milliner, W.*	Thames (Metropolitan Police Court), August 2.	Do. do.	1	2 0 0	0 2 0
Rein & Shikofsky, 46, Union St., E., *Furriers, W.*	Thames (Metropolitan Police Court), September 5.	Do. do.	1	2 0 0	0 2 0
Butkin Goodman, 16, Tenter St. North, E., *Boot Uppers Manufacturer, W.*	Do.	Do. do.	1	2 0 0	0 2 0

a.—On the decision in the case under W. 10, this case was withdrawn.

b.—Dismissed. H.M. Inspector's Assistant caught two women hiding under the stairs at 10 p.m., and they admitted they had worked until he came; in Court they swore they were not hidden, and that they had ceased work at 8 p.m.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

IV.—EAST LONDON DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		E. Posting of Abstracts, Notices, &c.—*cont.*			
Whippe & Smith, Conner St., N.E., *Boxmakers, F.*	Worship Street (Metropolitan Police Court), December 6.	1. Failure to affix abstracts and notices.	1	1 0 0	0 2 0
Harris & Wardrop, Limehouse, E., *Sawmillers, F.*	Thames (Metropolitan Police Court), December 18.	Do. do.	1	0 15 0	0 2 0
Isaac Steinberg, Russell St., E., *Tailor, W.* ..	Do.	Do. do.	1	1 0 0	0 2 0
Joseph Alexander, 80, Lucas St., E., *Tailor, W.*	Do.	Do. do.	1	1 10 0	0 2 0
Samuel Armberg, 124, Lucas St., E., *Tailor, W.*	Do.	Do. do.	1	1 10 0	0 2 0
		D. Fencing; Dangerous Machinery, &c.			
Mein, Bros., Station St., Stratford, *Engineers, F.*	West Ham (Borough), April 11.	1. Failure to fence dangerous machinery.	1	5 0 0	0 11 6
A. F. Smith, Medland St., Limehouse, E., *Laundry Occupier, F.*	Thames (Metropolitan Police Court), May 16.	Do. do.	1	5 0 0	0 2 0
C. Anderson, Purfleet, *Paper Maker, F.*... ..	Grays (County), August 3.	Do. do.	1	9 15 0	1 4 6
Perry & Co., Tredegar Sawmills, Bow, E., *Sawmillers, F.*	Worship Street (Metropolitan Police Court), September 18.	Do. do.	1	5 9 0	0 9 6
Gilderson & Sons, Ilford, *Coach Builders, F.*..	Stratford (County), December 1.	Do. do.	1	0 10 0	0 10 0
C. J. Wills, Ilford, *Contractor, F.*..	Do.	Do. do.	1	5 0 0	1 19 6
G. B. Kent & Co., Robinson Road, Hackney, E., *Brush Makers, F.*	Worship Street (Metropolitan Police Court), December 13.	Do. do.	2	4 0 0	0 4 0
R. C. P. Knight, Springfield, Chelmsford, *Engineer, F.*	Chelmsford (County), December 14.	Do. do.	1	1 0 0	0 18 0
Jones Iron Foundry & Engineering Co., Ltd., Poplar, E., *Ironfounders, F.*	Thames (Metropolitan Police Court), December 18.	Do. do.	1	3 0 0	0 10 0
Harris & Wardrop, Limehouse, E., *Sawmillers, F.*	Do.	Do. do.	1	1 0 0	0 6 0
Venesta, Ltd., Limehouse, E., *Boxmakers, F.*	Do.	Do. do.	1	3 0 0	0 6 0
		K. Cleanliness, Ventilation, Overcrowding.			
James West, Commercial Road, E., *Ropemaker, F.*	Thames (Metropolitan Police Court), April 25.	1. Failure to limewash factory, &c.	1	10 0 0	0 2 0
J. Rowe & Co., 444, Arch, Baythorne St., E., *Engineers, F.*	Thames (Metropolitan Police Court), August 2.	Do. do.	1	2 0 0	0 2 0
W. Shea & Co., 75, Wells St., Hackney, *Bootmakers, F.*	North London (Metropolitan Police Court), August 31.	Do. do.	1	4 0 0	0 2 0
Carter & Son, Halstead, *Letterpress Printers, F.*	Halstead (County), October 9.	Do. do.	1	0 10 0	0 9 6
J. Benton & Co., Commercial Road, E., *Biscuit Bakers, F.*	Thames (Metropolitan Police Court), October 31.	Do. do.	1	4 0 0	0 2 0
W. Ritchie & Son, Carpenter Road, Stratford, *Jute Manufacturers, F.*	West Ham (Borough), June 18.	3. Neglecting to provide or use fans, &c., to prevent inhalation of dust or fumes.	1*a*	—	—
Alec. Greenberg, 168, Commercial Road, E., *Tailor, W*	Thames (Metropolitan Police Court), May 16.	5. Allowing workshop to be overcrowded, &c.	1	3 0 0	0 2 0
Jacob Greenberg, 146, Commercial Road, E., *Underclothing Manufacturer, W.*	Do.	Do. do.	1	3 0 0	0 2 0

a.—Dismissed; the Stipendiary saying that to prove that the dust was generated and inhaled to an injurious extent is not sufficient, it is necessary to prove that actual injury followed the inhalation. On appeal it was decided that the Stipendiary's view was incorrect.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

IV.—EAST LONDON DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		II.—CHILDREN.		£ s. d.	£ s. d.
		L. Employment of Children at Illegal Times.			
Woodham Ferris Brick Co., Woodham Ferris, *Brickmakers, F.*	Chelmsford (County), October 19.	8. Otherwise than on morning and afternoon sets or on alternate days.	1	1 0 0	0 18 0
L. & L. Utton, Southend-on-Sea, *Brickmakers, F.*	Southend (Borough), October 30.	Do. do.	1	0 2 6	0 12 0
		M. Parental Obligations.			
James Hodges, parent of child employed by L. & L. Utton, Southend-on-Sea, *Brickmakers, F.*	Southend, (Borough). October 30.	1. Parent allowing child to be illegally employed.	1	0 10 0	0 9 0
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
V. A. Hallpike, Mare St., Hackney, *Pianoforte Movement Manufacturers, F.*	North London (Metropolitan Police Court), March 23.	Employing young person under 16 without certificate of fitness.	1	2 0 0	0 6 0
Tennessee Pianoforte Co., Ltd., Peel Grove, Hackney, N.E., *Piano Makers, F.*	North London (Metropolitan Police Court), April 3.	Do. do.	1	1 0 0	0 6 0
G. Ellis & Co., Ltd., Gainsboro' Road, Old Ford, E., *Sawmillers, F.*	Do.	Do. do.	1	0 10 0	0 6 0
A. W. Robertson & Co., Canning Town, E., *Shipbuilders, F.*	West Ham (Borough), April 4.	Do. do.	1	3 0 0	0 14 6
W. G. Hasted & Sons, 306, Mile End Road, E., *Letterpress Printers, F.*	Thames (Metropolitan Police Court), April 25.	Do. do.	1	1 14 0	0 6 0
A. Gray & Co., High St., Homerton, E., *Glass Manufacturers, F.*	North London (Metropolitan Police Court), May 18.	Do. do.	1	1 0 0	0 6 0
Adolph Frankau & Co., Ltd., Homerton, E., *Wood Pipe Manufacturers, F.*	North London (Metropolitan Police Court), May 25.	Do. do.	1	0 10 0	0 8 0
H. Lottery & Co., Walthamstow, E., *Clothing Manufacturers, F.*	Stratford (County), June 16.	Do. do.	2	4 0 0	1 8 0
New Lea Valley Distillery Co., Ltd., Warton Road, Stratford, *Distillers, F.*	West Ham (Borough), June 18.	Do. do.	1	2 0 0	0 10 6
Sir W. A. Rose & Co., West Ferry Road, Poplar, E., *Paint and Colour Manufacturers, F.*	Thames (Metropolitan Police Court), August 2.	Do. do.	1	1 0 0	0 6 0
Wilson & Whitworth, High St., Grays, *Letterpress Printers, F.*	Grays (County), August 3.	Do. do.	1	—	0 9 6
W. Shea & Co., 75, Wells St., Hackney, *Bootmakers, F.*	North London (Metropolitan Police Court), August 31.	Do. do.	1	3 0 0	0 6 6
Spratt Bros., Tudor Works, Hackney, *Photographic Apparatus Manufacturers, F.*	Do.	Do. do.	1	3 0 0	0 6 6
Carter & Son, Halsted, *Letterpress Printers, F.*	Halstead (County), October 9.	Do. do.	1	0 10 0	0 10 6
L. & L. Utton, Southend-on-Sea, *Brickmakers, F.*	Southend (Borough), October 30.	Do. do.	2	1 0 0	1 1 0
Taylor Bros., Ltd., Brick Lane, E., *Chocolate Makers, F.*	Worship Street (Metropolitan Police Court), November 28.	Do. do.	4	4 0 0	1 6 0
Robert Lisles, Walthamstow, *Joiner, F.* ..	Stratford (County), December 1.	Do. do.	1	0 2 6	0 10 0
Gilderson & Sons, Ilford, *Coach Builders, F.*	Do.	Do. do.	1	0 2 6	0 10 0
Arthur Greenwood, London Fields, N.E., *Bootmaker, F.*	North London (Metropolitan Police Court), December 5.	Do. do.	1	2 0 0	0 6 6
Venesta, Ltd., Limehouse, E., *Boxmakers, F.*	Thames (Metropolitan Police Court), December 18.	Do. do.	2	1 18 0	0 12 0
T. Smith & Son, 24, Bow Road, E., *Ropemakers, F.*	Thames (Metropolitan Police Court), December 27	Do. do.	1	1 10 0	0 6 0

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

IV.—EAST LONDON DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty (5)	Costs (6)
		III.—YOUNG PERSONS—*cont.*		£ s. d.	£ s. d.
		B. Employment of Young Persons at Illegal Times.			
Julius Coureich, 28, Bedford St., Stepney, E., *Tailor, W.*	Thames (Metropolitan Police Court), April 25.	1. Before or after legal hours ..	1	1 12 0	0 8 0
Isaac Cohen, 108, Newark St., E., *Tailor, W.*..	Thames (Metropolitan Police Court), May 16.	Do. do.	2	5 0 0	0 12 0
Wm. Jonathan Saul, 156, Stamford Hill, N., *Bootmaker, W.*	North London (Metropolitan Police Court), May 1-.	Do. do.	1	1 0 0	0 6 0
Solomon Kanonovich, 22, Little Turner St., E., *Capmaker, W.*	Thames (Metropolitan Police Court), June 6.	Do. do.	1	3 0 0	0 12 0
T. W. Dickson, Yalford St., E., *Ironfounder, F.*	Thames (Metropolitan Police Court), June 20.	Do. do.	1	2 0 0	0 6 0
Joseph Cohen, 18, Morgan St., E., *Tailor, W.*..	Thames (Metropolitan Police Court), June 27.	Do. do.	1a	—	—
Abraham Stern, 28, Whitechapel Road, E., *Milliner, W.*	Thames (Metropolitan Police Court), August 2.	Do. do.	1	3 0 0	0 6 0
E. P. Caswell, Grays, *Mineral Water Makers, F.*	Grays (County), October 12.	Do. do.	2	2 0 0	0 19 0
Emily Forfar, Head St., Colchester, *Baker, W.*	Colchester (Borough), October 16.	Do. do.	1	—	0 17 0
Fletcher, Son, & Fearnall, Bridge Road, Poplar, E., *Ship Repairers, F.*	Thames (Metropolitan Police Court), October 31.	Do. do.	1	3 0 0	0 6 0
Whipps & Smith, Conner St., N.E., *Boxmakers, F.*	Worship Street (Metropolitan Police Court), December 6.	Do. do.	4	4 0 0	1 6 0
Nathan Richmond, 15, Sceptre St., E., *Cabinetmaker, W.*	Worship Street (Metropolitan Police Court), December 13.	Do. do.	1	1 0 0	0 6 0
W. G. Clarke & Son, Thomas St., E., *Biscuit Bakers, F.*	Thames (Metropolitan Police Court), December 27.	Do. do.	7	5 10 0	2 2 0
James Richardson, Blyth's Wharf, Limehouse, E., *Sawmiller, F.*	Thames (Metropolitan Police Court), February 14.	4. Beyond legal hour on half-holiday.	2	6 0 0	0 12 0
Wm. Ely, Southminster, *Coach Builder, W.* ..	Latchingdon (County), June 30.	Do. do.	1	1 0 0	0 14 6
Robert Lisles, Walthamstow, *Joiner, F.* ..	Stratford (County), December 1.	Do. do.	1	0 2 6	0 10 0
Isaac Levy, 9, Plummer's Row, E., *Tailor, W.*	Thames (Metropolitan Police Court), June 6.	6. At meal times	2	2 0 0	0 12 0
Henry Cohen, 14, Bromehead St., E., *Tailor, W.*	Do.	9. At night	2	4 10 0	0 12 0
Wender & Kauffman, 34, Bedford St., E., *Tailors, W.*	Do.	Do. do.	1	3 0 0	0 1 0
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
Harris Berger, 124, Oxford St., E., *Tailor, W.*	Thames (Metropolitan Police Court), June 27.	1. Before or after legal hours ..	1	2 0 0	0 6 0
Johanna Klagge, 43 Bedford St., E., *Tailoress, W.*	Thames (Metropolitan Police Court), September 5.	Do. do.	3	4 2 0	0 18 0
Jacob Greenbaum, 8A, Little Alie St., E., *Tailor, W.*	Thames (Metropolitan Police Court), November 27.	Do. do.	1	3 0 0	0 6 0
Davis, Cohen, and Morris, 13, Sceptre, St. E., *Boot Workers, W.*	Worship Street (Metropolitan Police Court), December 13.	Do. do.	2	2 0 0	0 13 0

a.—Dismissed. Two Inspector's assistants swore they saw the boy at work cutting, the defendant swore the boy was not learning the trade and was only cutting his nails, notwithstanding that the constable found the boy cutting when he served the summons.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

IV.—EAST LONDON DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		IV.—WOMEN—*cont.*		£ s. d.	£ s. d.
		W. Employment of Women at Illegal Times—*cont.*			
Annie Hymans, 55, Christian St., St. George's, *Dressmaker, W.*	Thames (Metropolitan Police Court), April 25.	6. At meal times	2	2 0 0	0 12 0
Annie Bloomberg, 3, Batty St., St. George's, *Bootmaker, W.*	Do.	Do. do.	2	2 0 0	0 12 0
Harris Bremen, 13, Cannon Street Road, St. George's, *Tailor, W.*	Do.	Do. do.	2	2 0 0	0 12 0
*Jacob Forest, 43, Gt. Prescott St., E., *Tailor, W.*	Thames (Metropolitan Police Court), June 6.	Do. do.	1	2 0 0	0 6 0
John Goldstein, 110, Newark St., E., *Tailor, W.*	Do.	Do. do.	1	2 0 0	0 6 0
L. Cline, 57, New Road, E., *Tailor, W.*	Thames (Metropolitan Police Court), June 27.	Do. do.	4	2 0 0	1 2 0
Harris Schniderman, 116, Back Church Lane, E., *Tailor, W.*	Do.	Do. do.	2	0 10 0	0 12 0
Lewis Green, 10, Little Alie Street, E., *Tailor, W.*	Do.	Do. do.	3	1 10 0	0 18 0
Abram Marks, 4, William St., E., *Tailor, W.* ..	Do.	Do. do.	3	0 15 0	0 18 0
Lewis Gold, 18, Pelham St., Spitalfields, E., *Tailor, W.*	Worship Street (Metropolitan Police Court), November 23.	Do. do.	3	5 0 0	0 19 6
Marks Gilbert, 9, Finch Street, Spitalfields, E., *Tailor, W.*	Do.	9. At night	1	5 0 0	0 6 6
Samuel Fox, 24, Davis Avenue, Hunt St., E., *Tailor, W.*	Do.	Do. do	1	5 0 0	0 6 6
Hollington Bros., 14, High St., Whitechapel, *Clothiers, W.*	Thames (Metropolitan Police Court), November 27.	10. On Sunday	1*a*	—	—
.. .. ..	..				
		V.—DANGEROUS TRADES, &c.			
Sir W. A. Rose & Co., West Ferry Road, Poplar, E., *Paint and Colour Manufacturers, F.*	Thames (Metropolitan Police Court), August 2.	1. Failure to observe or affix Special Rules. Paints, Colours, &c.:— Failure to provide proper washing conveniences or bath accommodation.	1	10 0 0	0 2 0
..		**IX.—BAKEHOUSES.**			
J. Benton & Co., Commercial Road, E., *Biscuit Bakers, F.*	Thames (Metropolitan Police Court), October 31.	2. Using or allowing to be used as a bakehouse a place where sanitary regulations have not been complied with.	1	2 0 0	0 2 0

V.—KENT DISTRICT.

		I.—GENERAL.			
		E. Posting of Abstracts, Notices, &c.			
†Jane Nash, 36, Union St., Rochester, *Dressmaker, W.*	Rochester (City), May 29.	1. Failure to affix abstracts and notices.	1	0 0 6	0 9 0
		D. Fencing; Dangerous Machinery, &c.			
John Bazley, White & Bros., Ltd., Bridge Cement Works, Frindsbury, *Cement Manufacturers, F.*	Chatham (County), May 22.	2. Penal compensation in cases where death or injury has resulted from:— (*a*) Failure to fence machinery.	1	10 0 0	1 7 6

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

V.—KENT DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		II.—CHILDREN.		£ s. d.	£ s. d.
		L. Employment of Children at Illegal Times.			
Wills & Packham, Crown Quay, Sittingbourne, *Brick Manufacturers, F.*	Sittingbourne (County), July 2.	8. Otherwise than in morning and afternoon sets, or on alternate days.	1	1 0 0	0 12 0
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
William Rigby, The Harbour, Folkestone, *Sawmiller, F.*	Folkestone (Borough), March 28.	Employing young person under 16, without certificate of fitness.	1	1 0 0	0 12 6
Lawrence & Wimble, Shore, Northfleet, *Cement Manufacturers, F.*	Northfleet (County), June 25.	Do. do.	2	1 0	1 4 0
Budden & Biggs, Ltd., High St., Strood, *Brewers, F.*	Rochester (City), November 17.	Do. do.	1	0 10 0	0 13 6
		R. Employment of Young Persons at Illegal Times.			
Wills & Packham, Crown Quay, Sittingbourne, *Boatbuilders, F.*	Sittingbourne (County), July 2.	1. Before or after legal hours ..	2	2 0 0	0 18 0
E. Lyle & Sons, Gardiner St., Tunbridge Wells, *Mineral Water Manufacturers, F.*	Tunbridge Wells (Borough), September 3.	Do. do.	6	1 10 0	3 0 0
†Jane Nash, 36, Union St., Rochester, *Dressmaker, W.*	Rochester (City), May 29.	4. Beyond legal hour on half-holiday.	1	0 0 6	0 9 6
†W. & G. Homan, Rochester Banks, Rochester, *Dressmakers, W.*	Do.	Do. do.	1	0 5 0	0 10 0
Budden & Biggs, Ltd., High St., Strood, *Brewers, F.*	Rochester (City), November 17.	Do. do.	1	0 10 0	0 9 0
†W. & G. Homan, Rochester Banks, Rochester, *Dressmakers, W.*	Rochester (City), May 29.	8. Beyond legal period without interval for meals.	1	0 6 0	0 9 0
Ekman Pulp and Paper Co., Ltd., Galley Hill, Swanscombe, *Paper Manufacturers, F.*	Dartford (County), August 30.	9. At night	1	3 0 0	0 14 0
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
D. P. W. Jones & Co., Dover St., Folkestone, *Mineral Water Manufacturers, F.*	Folkestone (Borough), September 5.	1. Before or after legal hours ..	3	1 10 0	1 14 6
† Jane Nash, 36, Union St., Rochester, *Dressmaker, W.*	Rochester (City), May 29.	4. Beyond legal hour on half holiday.	1	0 0 6	0 9 6
† W. & G. Homan, Rochester Banks, Rochester, *Dressmakers, W.*	Do.	Do. do.	1	0 5 0	0 10 0
Do. do.	Do	8. Beyond legal period without interval for meals.	1	0 6 0	0 9 0

VI.—SOUTHAMPTON DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
Josiah Rake, High St., Weymouth, *Firewood Dealer, F.*	Weymouth (Borough), March 2.	3. Keeping register of children and young persons, &c.	1	—	0 5 0
Edward Phillips, Okeford, Fitzpayne, Sturminster Newton, *Butter Manufacturer, F.*	Sturminster Newton (County), August 23.	Do. do.	1	0 2 6	0 7 0

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

VI.—SOUTHAMPTON DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c.—*cont.*			
		Failure as regards:—			
H. A. Harman, Southsea, *Dressmaker*, *W.* ..	Portsmouth(Borough), January 16.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	3*a*	—	0 9 0
Frantisek Hejl, London Road, Southampton, *Tailor*, *W.*	Southampton (Borough), May 10.	Do. do.	6*b*	4 0 0	2 6 6
		B. Posting of Abstracts, Notices, &c.			
Thomas Barnes, Warblington St., Portsmouth, *Blacksmith*, *W.*	Portsmouth(Borough), April 13.	1. Failure to affix abstracts and notices.	1	0 3 0	0 12 0
R. G. James & Co., Portsea, *Tailors*, *W.*	Portsmouth(Borough), December 18.	Do. do.	1	0 15 0	0 12 6
		D. Fencing; Dangerous Machinery.			
G. Pearce & Son, Alton, Hants, *Sawmillers*, *F.*	Alton (County), March 20.	1. Failure to fence dangerous machinery.	1*c*	—	0 17 0
V. Ings, Alton, Hants, *Sawmillers*, *F.*	Alton(County),November 27.	Do. do.	1*c*	1 0 0	0 19 0
		II.—CHILDREN.			
		K. Age, Fitness, &c., of Children.			
Josiah Rake, High St., Weymouth, *Firewood Dealer*, *F.*	Weymouth (Borough), March 2.	2. Without certificate of school attendance.	1*d*	—	—
Edward Phillips, Okeford, Fitzpayne, Sturminster Newton, *Butter Manufacturer*, *F.*	Sturminster Newton (County), August 23.	Do. do.	2	0 10 0	1 5 0
		III.—YOUNG PERSONS.			
		R. Employment of Young Persons at Illegal Times.			
Charles Hutchens, St. Mary's Road, Southampton, *Firewood Manufacturer*, *F.*	Southampton (Borough), March 22.	1. Before or after legal hours ..	2	0 10 0	1 1 0
William Evans, Dorchester, *Draper*, *W.* ..	Dorchester (Borough), October 8.	Do. do.	2	0 17 0	1 8 0
H. T. Hatherley, 19, Thomas St., Landport, Portsmouth, *Baker*, *W.*	Portsmouth(Borough), May 17.	9. At night	1	0 1 0	0 7 6
Mordey Carney (Southampton), Ltd., Woolston, Hants, *Shipbuilders*, *F.*	Southampton(County), September 28.	10. On Sundays..	3	3 0 0	1 8 6
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
H. A. Harman, Southsea, *Dressmaker*, *W.* ..	Portsmouth(Borough), January 16.	1. Before or after legal hours ..	3	1 10 0	1 16 0
Henry Jackson, Basingstoke, *Dressmaker*, *W.*	Basingstoke(Borough), June 26.	Do. do.	3*e*	0 3 0	1 11 0
R. G. James & Co., Portsea, *Tailors*, *W.* ..	Portsmouth (Borough), December 18.	Do. do.	3	2 5 0	1 17 6
Henry Jackson, Basingstoke, *Dressmaker*, *W.*	Basingstoke(Borough), June 26.	4. Beyond legal hour on half holiday.	3*e*	0 1 0	1 11 0

a.—Withdrawn on payment of costs.
b.—Two cases withdrawn on payment of costs.
c.—Magistrate ordered circular saw to be fenced within twenty-one days.
d.—Dismissed.
e.—Two cases withdrawn on payment of costs.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

VII.—PLYMOUTH DISTRICT.

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS.		£ s. d.	£ s. d.
		B. Employment of Young Persons at Illegal Times.			
G. W. Crocker & Son, 44, Cornwall St., Devonport, *Mineral Water Manufacturers, F.*	Devonport (Borough), August 7.	4. Beyond legal hour on half holiday.	1	0 10 0	0 13 6
W. Dubbin, James St., Devonport, *Mineral Water Manufacturer, F.*	Do.	Do. do.	1	0 10 0	0 13 6
† G. Edgcumbe, Market St., Liskeard, *Draper and Contractor for Knitting.*	Liskeard (Borough), November 5.	**XIV.—TRUCK ACTS.**	2	1 0 0	1 10 9
† Wm. Leary Quick, Liskeard, *Draper and Contractor for Knitting.*	Liskeard (County), November 7.	Do. do.	2	1 0 0	1 18 9
† J. C. Johns, 24, Albert Road, Morice Town, Plymouth, *Draper and Contractor for Knitting.*	Do.	Do. do.	2	1 0 0	1 10 4
† Aaron Stanton, East Looe, *Draper and Contractor for Knitting.*	Do.	Do. do.	2	1 10 0	2 18 0

VIII.—BRISTOL DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards :—			
Yeo Bros., Paull, & Co., Ltd., Victoria St., Bristol, *Sack Manufacturers, F.*	Bristol (City), February 28.	3. Keeping register of children and young persons, &c.	1	0 16 0	0 7 0
Joseph Williams, Bath Road, Swindon, *Builder, F.*	Swindon (County), January 25.	6. Keeping register of accidents and diseases, or keeping it open to inspection.	1	0 0 6	0 9 6
John Curtis & Co., Ltd., Chapel St., St. Philips, Bristol, *Oil Cake Manufacturers, F.*	Bristol (City), May 18	7. Notifying accident	1	1 0 0	0 17 0
		B. Posting of Abstracts, Notices, &c.			
Chas. E. Davis, Stokes Croft, Bristol, *Baker, W.*	Bristol (City), May 18	1. Failure to affix abstracts and notices.	1	1 0 0	0 7 0
Chas. M. Cuthbert, Cheltenham Road, Bristol, *Baker, W.*	Do.	Do. do.	1*a*	—	—
Fredk. Jas. Goatman, 68, Barton St., Gloucester, *Tailor, W.*	Gloucester (City), October 5.	Do. do.	1	—	0 6 0
Frank Culverhouse, Market Place, Glastonbury, *Saddler, W.*	Glastonbury (Borough), November 27.	Do. do.	1	0 2 6	0 6 0
* Ayers & Sons, Painswick Road, Stroud, *Sawmillers, F.*	Stroud (Borough), December 14.	Do do.	1	0 10 0	0 6 0
		D. Fencing; Dangerous Machinery, &c.			
Joseph Williams, Bath Road, Swindon, *Builder, F.*	Swindon (County), January 25.	1. Failure to fence dangerous machinery.	1	1 7 6	0 12 6
Todd & Co., Chatterton Lane, Bristol, *Clothiers, F.*	Bristol (City), February 28.	Do. do.	1	2 0 0	0 8 0
Yeo Bros., Paull, & Co., Ltd., Victoria St., Bristol, *Sack Manufacturers, F.*	Do.	Do. do.	1	2 0 0	0 7 0
Hatcher & Sons, 5, Old King St., Bristol, *Chairmakers, F.*	Bristol (City), August 8	Do. do.	1	3 0 0	0 7 0
Fielding & Platt, Ltd., St. Lukes St., Gloucester, *Engineers, F.*	Gloucester (City), August 17.	Do. do.	1	1 0 0	0 6 0
		H. Cleanliness, Ventilation, Overcrowding, &c.			
Weber & Co., 26, Portland Square, Bristol, *Confectioners, F.*	Bristol (City), May 18	1. Failure to limewash factory, &c.	1	1 0 0	0 7 0

a.—Dismissed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

VIII.—BRISTOL DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		II.—CHILDREN.		£ s. d.	£ s. d.
		K. Age, Fitness, &c., of Children.			
Wilts United Dairies, Ltd., Melksham, *Butter Manufacturers, F.*	Melksham (County), January 4.	3. Without certificate of fitness ..	1	0 2 6	0 10 0
•**William S. Cox,** Chalford, *Silk Thrower, F.* ..	Stroud (Borough), December 14.	Do, do.	2	4 0 0	0 15 0
		L. Employment of Children at Illegal Times.			
•**Great Western Cotton Co., Ltd.,** Barton Hill, Bristol, *Cotton Manufacturers, F.*	Bristol (City), June 18	5. At meal times	1	0 10 0	0 10 0
Wilts United Dairies, Ltd., Melksham, *Butter Manufacturers, F.*	Melksham (County), January 4.	8. Otherwise than in morning and afternoon sets, or on alternate days.	1	0 5 0	0 6 0
Oliver Wilkins, Roundstone St., Trowbridge, *Confectioner, W.*	Trowbridge (County), November 7.	Do. do.	1	0 3 0	0 12 0
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
Wilts United Dairies, Ltd., Melksham, *Butter Manufacturers, F.*	Melksham (County), January 4.	Employing young person under 16 without certificate of fitness.	1	0 2 6	0 10 0
Yeo Bros., Paull, & Co., Ltd., Victoria St., Bristol, *Sack Manufacturers, F.*	Bristol (City), February 28.	Do. do.	1	0 10 0	0 10 6
Hatcher & Sons, 5, Old King St., Bristol, *Chairmakers, F.*	Bristol (City), August 8	Do. do.	2	1 0 0	1 0 0
•**William S. Cox,** Chalford, *Silk Thrower, F.*	Stroud (Borough), December 14.	Do. do.	2	4 0 0	0 15 0
•**Ayers & Sons,** Painswick Road, Stroud, *Sawmillers, F.*	Do.	Do do.	1	1 0 0	0 7 0
		R. Employment of Young Persons at Illegal Times.			
•**Hansford & Co.,** Grosvenor Road, Bristol, *Aërated Water Manufacturers, F.*	Bristol (City), August 15.	1. Before or after legal hours ..	2	4 0 0	1 3 7
Thomas Adams & Sons, Ltd., Monksmeadow, Gloucester, *Sawmillers, F.*	Gloucester (City), September 7.	Do. do.	4*a*	—	—
Do. do.	Gloucester (County), September 15.	Do. do.	4*b*	1 1 0	2 2 0
Henry Stagg, foreman, employed by J. B. Petter & Sons, Tabernacle Lane, Yeovil, *Engineers and Ironfounders, F.*	Yeovil (Borough), December 4.	Do. do.	2*c*	1 0 0	1 1 0
Frank Culverhouse, Market Place, Glastonbury, *Saddler, W.*	Glastonbury (Borough), November 27.	4. Beyond legal hour on half-holiday.	1	0 2 6	0 11 1
•**Great Western Cotton Co., Ltd.,** Barton Hill, Bristol, *Cotton Manufacturers, F.*	Bristol (City), June 18	6. At meal times	1	0 10 0	0 10 0
Savory & Sons, Painswick, *Hairpin Manufacturers, F.*	Stroud (Borough), December 14.	Do do.	1*d*	—	—
†**Richard, Thomas & Co., Ltd.,** Lydbrook, *Tinplate Manufacturers, F.*	Coleford (County), April 24.	9. At night	1	1 0 0	0 14 0
•**Lucy Alexander,** 65, Market Place, Chippenham, *Dressmaker, W.*	Chippenham (County), May 3.	Do. do.	2	2 17 0	1 3 0
Chas. E. Davis, Stokes Croft, Bristol, *Baker, W.*	Bristol (City), May 18	Do do.	1	1 0 0	0 11 0
Chas. M. Cuthbert, Cheltenham Road, Bristol, *Baker, W.*	Do.	Do. do.	1	1 0 0	0 11 0
Joseph J. Needham, West St., Bedminster, Bristol, *Baker, W.*	Do.	Do. do.	1	0 10 0	0 11 0

a.—Dismissed on the grounds that City magistrates had no jurisdiction. The Borough Extension Act, which will include Monks' meadow in the City, had received the Royal Assent, but did not come into force till November 1st.

b.—One case withdrawn on payment of costs.

c.—These informations were originally laid against the Firm, but under s. 87 (1878) were transferred to the Foreman.

d.—Dismissed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

VIII.—BRISTOL DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		IV.—WOMEN.		£ s. d.	£ s. d.
		W. Employment of Women at Illegal Times.			
"Camwal," Ltd., Victoria Road, St. Philip's Marsh, Bristol, *Aërated Water Manufacturers, F.*	Bristol (City), August 15.	1. Before or after legal hours ..	2	2 0 0	1 0 0
G. C. King & Co., York St., St. Paul's, Bristol, *Aërated Water Manufacturers, F.*	Do.	Do. do.	2	2 0 0	1 0 0
Newton Heath, Market Place, Chippenham, *Dressmaker, W.*	Chippenham (County), May 3.	4. Beyond legal hour on half-holiday.	3	0 10 6	1 14 6
*Great Western Cotton Co., Ltd., Barton Hill, Bristol, *Cotton Manufacturers, F.*	Bristol (City), June 18	6. At meal times	1	0 10 0	0 10 0
Savory & Sons, Painswick, *Hairpin Manufacturers, F.*	Stroud (Borough), December 14.	Do. do.	1*a*	—	—
†Richard, Thomas & Co., Ltd., Lydbrook, *Tinplate Manufacturers, F.*	Coleford (County), April 24.	7. In prohibited room during meal hours.	1	0 10 0	0 17 0
Do. do.	Do.	9. At night	1	1 0 0	0 14 0
*Lucy Alexander, 66, Market Place, Chippenham, *Dressmaker, W.*	Chippenham (County), May 3.	Do. do.	3	1 5 6	1 14 6
†Sarah Hine, South St., South Petherton, *Grocer and Contractor for Gloves.*	Ilminster (County), October 31.	**XIV.—TRUCK ACTS.**	2*b*	0 10 0	1 4 6

IX.—NORTHAMPTON DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
Stephen Patrick, Union St., Kettering, *Currier and Dyer, F.*	Kettering (County), March 14.	3. Keeping register of children and young persons, &c.	1	0 2 6	0 7 0
Henry Bacchus, High St., Bedford, *Whitesmith, F.*	Bedford (Borough), October 8.	Do. do.	1	0 0 6	—
		D. Fencing; Dangerous Machinery, &c.			
Tyler & Ellis Manufacturing Co., Ltd., Great Eastern St., Peterborough, *Engineers, F.*	Liberty of Peterborough (County), June 27.	1. Failure to fence dangerous machinery.	1	1 0 0	0 4 6
Ferry Brick Co., Ltd., Higham Ferrers, *Brick Manufacturers, F.*	Higham Ferrers (Borough), March 12.	2. Penal Compensation in cases where death or injury has resulted from:— Failure to fence machinery.	1*c*	10 0 0	1 1 0
		E. Cleanliness, Ventilation, Overcrowding.			
Bailey & Elson, Wellingborough Road, Finedon, *Boot Manufacturers, F.*	Wellingborough (County), April 20.	1. Failure to limewash factory, &c.	1*d*	—	0 6 0
Smith, Sheffield, & Foster, Sackville St., Kettering, *Boot Manufacturers, F.*	Kettering (County), May 30.	Do. do.	1	0 5 0	0 6 0
Union Boot & Shoe Productive Society, Ltd., Tanners Lane, Kettering, *Boot Manufacturers, F.*	Kettering (County), June 6.	Do. do.	1	0 5 0	0 6 0

a.—Dismissed.

b.—Chairman told Defendant that as Bench believed she had acted in ignorance of the law, a nominal fine would be inflicted, but that in any future case a heavy fine would be imposed, as the practice of paying wages, otherwise than in current coin, must be stopped.

c.—The Bench decided to convict under Section 5 (1878), as it was understood that action was being taken under the Workmen's Compensation Act.

d.—Withdrawn on payment of costs.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

IX.—NORTHAMPTON DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS.		£ s. d.	£ s. d.
		Q. Fitness, &c.			
Loasby & Miller, Lower St., Kettering, *Boot Manufacturers, F.*	Kettering (Borough), February 7.	Employing young person under 16 without certificate of fitness.	1	0 2 6	0 7 0
Grose Gear Case, Ltd., Horseshoe St., Northampton, *Cycle Manufacturers, F.*	Northampton (Borough), February 28.	Do. do.	1	0 10 0	0 13 0
Thos. Patenhall, Higham Ferrers, Northants, *Boot Manufacturer, F.*	Higham Ferrers (Borough), March 12.	Do. do.	1	1 0 0	0 10 6
Carter & Sons, Clarence Avenue, Kingsthorpe, Northampton, *Boot Manufacturers, F.*	Northampton (County), August 1.	Do. do.	2	2 0 0	0 17 0
		R. Employment of Young Persons at Illegal Times.			
D. H. Stott, Cross St., Peterborough, *Letterpress Printer, F.*	Liberty of Peterborough (County), March 7.	1. Before or after legal hours ..	1	1 0 0	0 8 0
Sanders & Co., Cheapside, Luton, *Straw Hat Manufacturers, W.*	Luton (Borough), May 2.	Do. do.	1	0 2 6	0 10 6
Geo. Welch, King St., Luton, *Straw Hat Manufacturer, F.*	Luton (Borough), May 23.	Do. do.	1	0 5 0	0 5 0
B. Garrard, 45, Cheapside, Luton, *Straw Hat Manufacturer, W.*	Do.	Do. do.	1	0 5 0	0 13 0
Stone Bros., Towler St., Peterborough, *Mineral Water Manufacturers, F.*	Liberty of Peterborough (County), July 26.	Do. do.	2	1 0 0	0 6 0
West & Co., Grafton Street, Northampton, *Mineral Water Manufacturers, F.*	Northampton (Borough), September 19.	4. Beyond legal hour on half-holiday.	1*a*	0 10 0	—
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
Thomas Mann, Waller St., Luton, *Straw Hat Manufacturer, W.*	Luton (Borough), May 23.	1. Before or after legal hours ..	1	0 5 0	0 11 6
George Welch, King St., Luton, *Straw Hat Manufacturer, F.*	Do.	Do. do.	1	0 5 0	0 11 0
• Thomas Mann, Waller Street, Luton, *Straw Hat Manufacturer, W.*	Luton (Borough), October 24.	9. At night	1	1 0 0	0 11 0

X.—NORWICH DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
† Hope Bros., Littleport, *Shirt Manufacturers, F.*	Ely and South Witchford (County), September 13.	3. Keeping register of children and young persons.	1	2 0 0	0 11 0
F. W. Bryant, London Road, Lowestoft, *Dressmaker, W.*	Lowestoft (Borough), January 22.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	3	1 15 6	1 4 6
Crabtree & Son, Market Place, Wisbech, *Tailors, W.*	Wisbech (Borough), February 14.	Do. do.	1	—	0 11 0
Palmer Bros., Market Place, Great Yarmouth, *Dressmakers, W.*	Yarmouth (Borough), May 26.	Do. do.	2	1 0 0	1 7 0
John Roots, South Green Ironworks, East Dereham, *Engineer, F.*	Dereham (County), August 24.	7. Notifying accident	1	1 0 0	0 12 0

a.—Costs remitted.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

X.—NORWICH DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		E. Posting of Abstracts, Notices, &c.			
W. G. Cross, Ballygate St., Beccles, *Tailor, W.*	Beccles (Borough), May 18.	1. Failure to affix abstracts and notices.	1	0 10 0	0 5 0
P. J. Gibbons, Blyburgate St., Beccles, *Cycle Maker, W.*	Do.	Do. do.	1	0 1 0	0 6 0
		D. Fencing; Dangerous Machinery, &c.			
East Anglian Ice Company, Ltd., Lowestoft, *Ice Manufacturers, F.*	Lowestoft (County), December 5.	1. Failure to fence dangerous machinery.	1	2 4 6	0 15 6
H. E. Barnes, Fleece Yard, Fishergate St., Norwich, *Cardboard Boxmaker, F.*	Norwich (City), November 27.	2. Penal Compensation in cases where death or injury has resulted from:— Failure to fence machinery.	1	5 0 0	1 1 6
		II.—CHILDREN.			
		K. Age, Fitness, &c. of Children.			
James Chapman, Sprowston, *Brickmaker, W.*	Norwich (County), July 7.	1. Under legal age	1*a*	—	—
		L. Employment of Children at Illegal Times.			
W. E. Hovell, Bedford St., Norwich, *Basket Chair Maker, W.*	Norwich (City), February 24.	8. Otherwise than in morning and afternoon sets, or on alternate days.	1	0 10 0	0 11 6
Ziba, Sones & Son, Thoroughfare, Halesworth, *Bootmakers, W.*	Halesworth (County), June 28.	Do. do.	1	1 0 0	0 12 6
* Sarah Ann Ellis, Sprowston, *Bootmaker, W.*	Norwich (County), July 7.	Do. do.	1	0 5 0	0 10 0
Henry Norton, Cowgate St., Norwich, *Bootmaker, W.*	Norwich (City), October 23.	Do. do.	1	0 10 0	0 10 6
Frederick Holmes, Clarence Road, Great Yarmouth, *Fishcurer, W.*	Great Yarmouth (Borough), November 13.	Do. do.	1	0 5 0	0 15 6
		N. Parental Obligations.			
George Tovell, Station Road, Halesworth, parent of child employed by Ziba, Sones & Son, Thoroughfare, Halesworth, *Bootmakers, W.*	Halesworth (County), June 28.	2. Parent neglecting to cause child to attend school.	1*b*	0 0 6	—
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
† Hope Bros., Littleport, *Shirt Manufacturers, F.*	Ely and South Witchford (County), September 13.	Employing young person under 16 without certificate of fitness.	4	2 8 0	3 4 0
		R. Employment of Young Persons at Illegal Times.			
Womack Brooks, Market Place, Beccles, *Dressmaker, W.*	Beccles (Borough), March 23.	1. Before or after legal hours ..	3	1 13 6	1 6 6
Savage Bros., Ltd., Alexandra Dock, King's Lynn, *Engineers, F.*	King's Lynn (Borough), May 7.	Do. do.	1	1 0 0	0 8 6
Harry Hambling, High St., Newmarket, *Milliner, W.*	Newmarket (County), May 8.	Do. do.	1	0 5 0	0 10 6
W. G. Cross, Ballygate St., Beccles, *Tailor, W.*	Beccles (Borough), May 18.	Do. do.	1	0 10 0	0 7 6
Caroline & Alice Rhodes, Broad St., March, *Dressmakers, W.*	March (County), July 19.	Do. do.	1	0 5 0	0 1 6

a.—Dismissed.
b.—Costs remitted.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

X.—NORWICH DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		R. Employment of Young Persons at Illegal Times—*cont.*			
John A. Everson, Thoroughfare, Harleston, *Mineral Water Manufacturer, F.*	Harleston (County), August 31.	1. Before or after legal hours ..	6	1 10 0	3 6 0
*Ellen L. Salmon, East Bergholt, *Baker, W...*	Ipswich (County), December 4.	2 Before or after legal hours in business of, but outside, the factory or workshop, when employed therein before and after dinner hour.	1	2 0 0	0 19 8
Robert Cordran, 133, Ber St., Norwich, *Baker, W.*	Norwich (City), October 23.	9. At night	1	0 5 0	—
Do. do.	Do.	10. On Sunday	1	0 5 0	—
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
Gardiner & Co., London St., Norwich, *Mantle Makers, W.*	Norwich (City), November 27.	1. Before or after legal hours ..	1*a*	0 1 0	—
*English & Son, London St., Norwich, *Milliners, W.*	Norwich (City), May 5	8. Beyond legal period without interval for meals.	1	3 0 0	0 11 6
		XIV.—TRUCK ACTS.			
*William Kemp, Gainsborough St., Sudbury, *Silk Manufacturer, W.*	Sudbury (Borough), February 15.		1	10 0 0	0 12 0
*William Kemp, Little Cross St., Sudbury, *Silk Manufacturer, W.*	Do.	Do. do.	1	0 1 0	0 9 0

XI.—BIRMINGHAM DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards :—			
Mary Brunt, 24, Sheep St., Birmingham, *Tube Drawer, F.*	Birmingham (City), January 5.	1. Notification of commencement of occupation.	1	2 0 0	0 10 6
Edward Griffiths, 4, Pitsford St., Birmingham, *Jeweller, W.*	Birmingham (City), October 19.	Do. do.	1	1 0 0	0 14 0
Adam Clarke & Co., Cooksey Road, Small Heath, *Brassfounders, F.*	Birmingham (City), January 5.	3. Keeping register of children and young persons, &c.	1	1 0 0	0 10 6
Appleby & Co., Ltd., 124, Vyse St., Birmingham, *Gold Ring Makers, F.*	Birmingham (City), January 26.	Do. do.	1	—	0 6 6
Samuel Levi, 16, Frederick St., Birmingham, *Jeweller, F.*	Do.	Do do.	1	1 0 0	0 10 0
Trevitt & Sons, 29, Augusta St., Birmingham, *Chainmakers, F.*	Birmingham (City), February 9.	Do. do.	1	2 0 0	0 10 6
T. Williams, 32, Tilton Road, Birmingham. *Chainmaker, F.*	Birmingham (City), February 16.	Do. do.	1	1 0 0	0 10 6
W. Perry, 7, Regent Parade, Birmingham, *Metal Spinner, F.*	Do.	Do. do.	1	1 0 0	0 10 6
Geo. Slater, 107, Vyse St., Birmingham, *Electroplater, F.*	Do.	Do. do.	1	1 0 0	0 10 6
Jones & Crompton, 36, Spencer St., Birmingham, *Silversmiths, F.*	Do.	Do. do.	1	1 0 0	0 10 6
W. H. Clutterbuck, 50, Northampton St., Birmingham, *Jeweller, F.*	Do.	Do. do.	1	1 0 0	0 10 6
Barker Bros., 116, Northwood St., Birmingham, *Brassfounders, F.*	Birmingham (City), March 2.	Do. do.	1	2 0 0	0 10 6
C. H. Cheshire, 3, Northampton St., Birmingham, *Jeweller, F.*	Do.	Do. do.	1	1 0 0	0 10 6

a.—Costs remitted.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XI.—BIRMINGHAM DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c.—*cont.*			
		Failure as regards :—			
Mould Bros., 69, Stratford Road, Birmingham, *Zinc Workers, F.*	Birmingham (City), March 9.	3. Keeping register of children and young persons, &c.	1*a*	—	—
Geo. Simkins & Sons, Newton St., Birmingham, *Lithographers, F.*	Birmingham (City), March 30.	Do. do.	1	1 0 0	0 10 6
G. E. Lancelott, 49, Tenby St. North, Birmingham, *Stamper and Piercer, F.*	Birmingham (City), April 6.	Do. do.	1	1 0 0	0 10 6
T. Perks & Sons, 84, Vyse St., Birmingham, *Jewellers, F.*	Birmingham (City), April 27.	Do. do.	1	1 0 0	0 10 6
G. Cadby & Sons, 28, Tenby St., Birmingham, *Metal Polishers, F.*	Do.	Do. do.	1	1 0 0	0 10 6
Geo. Freeman, 39, St. Paul's Square, Birmingham, *Electroplate Manufacturer, F.*	Birmingham (City), May 4.	Do. do	1	1 0 0	0 7 6
Wilby Pedal Co., 7, Oozells St., Birmingham, *Cycle Pedal Makers, F.*	Birmingham (City), May 25.	Do. do.	1	1 0 0	0 10 6
Hoskins Bros., Francis Road, Hay Mills, *Woven Wire Mattress Manufacturers, F.*	Acocks Green (County), July 26.	Do. do.	1	0 10 0	0 8 6
Eagle Range & Foundry Co., Catherine St., Aston, *Ironfounders, F.*	Birmingham (County), October 8.	Do. do.	1	1 0 0	0 12 6
Quadrant Cycle Co., Sheepcote St., Birmingham, *Cycle Manufacturers, F.*	Birmingham (City), October 12.	Do. do.	1	2 0 0	0 10 6
Thomas Wilkinson, Paynes Lane, Coventry, *Loom Manufacturer, F.*	Coventry (City), November 7.	Do. do.	1	0 2 6	0 6 8
John Wall, 8, Vyse St., Birmingham, *Jeweller, F.*	Birmingham (City), November 9.	Do. do.	1	1 10 0	0 10 6
Whitehouse & Son, 52, Vyse St., Birmingham, *Gold Chain Manufacturers, F.*	Do.	Do. do.	1	1 10 0	0 10 6
Thos. Hope, 304½, Broad St., Birmingham, *Metal Smallware Manufacturer, F.*	Birmingham (City), November 23.	Do. do.	1	1 0 0	0 10 6
New "Rapid" Cycle Co., Icknield St., Birmingham, *Cycle Manufacturers, F.*	Birmingham (City), December 14.	Do. do.	1	—	0 10 0
J. Pickering & Sons, Pershore St., Birmingham, *Soap and Candle Makers, F.*	Birmingham (City), January 28.	7. Notifying accident	1	1 0 0	0 14 0
H. S. Bevins, 387, Stratford Road, Birmingham, *Builder, F.*	Birmingham (City), February 9.	Do. do.	1	3 0 0	1 0 0
		B. Posting of Abstracts, Notices, &c.			
H. S. Bevins, 387, Stratford Road, Birmingham, *Builder, F.*	Birmingham (City), February 9.	1. Failure to affix abstracts and notices.	1	—	0 7 6
Mould Bros., 69, Stratford Road, Birmingham, *Zinc Workers, F.*	Birmingham (City), March 9.	Do. do.	1	1 0 0	0 11 6
Tom Hayes, 21, Spencer St., Birminghom, *Silversmith, F.*	Birmingham (City), March 30.	Do. do.	1	1 0 0	0 10 6
Bacon & Bill, 190, Warstone Lane, Birmingham, *Jewellers, W.*	Birmingham (City), April 6.	Do. do.	1	0 2 6	0 10 6
Simons, J., 25, Irving St., Birmingham, *Tailor, W.*	Do.	Do. do.	1	0 2 6	0 10 6
A. & J. Cartwright, 75, Ford St., Birmingham, *Stampers and Piercers, W.*	Birmingham (City), April 27.	Do. do.	1	1 0 0	0 14 0
F. W. Atkins, 106, Vyse St., Birmingham, *Jewel Case Manufacturer, W.*	Do.	Do. do.	1	2 0 0	0 10 6
E. Fletcher, 59, Key Hill, Birmingham, *Art Metal Manufacturer, W.*	Birmingham (City). May 4.	Do. do.	1	1 0 0	0 14 0
Robt. Birbeck & Sons, Great Charles St., Birmingham, *Printers, F.*	Birmingham (City), May 11.	Do. do.	1	1 0 0	0 10 0
Ten Acres & Stirchley Street Co-operative Society, Ltd., Ten Acres, *Boot Repairers, W.*	Northfield (County), July 13.	Do. do.	1	0 10 0	0 7 6
Saunders & Co., 310, Inknield St., Birmingham, *Coach Builders, W.*	Birmingham (City), July 20.	Do. do.	1	1 0 0	0 11 6
Sarah Trotman, 31, Westfield Road, Smethwick, *Dressmaker, W.*	Smethwick (Borough), August 1.	Do. do.	1	—	0 5 0

a.—Dismissed; costs remitted.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XI.—BIRMINGHAM DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		B. Posting of Abstracts, Notices, &c.—*cont.*			
Chas. Harriott, 109, Tower St., Birmingham, *Paper Box Manufacturer, W.*	Birmingham (City), October 5.	1. Failure to affix abstracts and notices.	1	1 0 0	0 10 6
Richmond Parke, 51, Vyse St., Birmingham, *Jeweller, F.*	Birmingham (City), November 9.	Do. do.	1	2 0 0	0 15 0
Frank Terrill, 236½, Great King St., Birmingham, *French Polisher, W,*	Birmingham (City), November 23.	Do. do.	1	1 0 0	0 14 0
Frederick Glover, 7½, Vyse St., Birmingham, *Electroplater, F.*	Birmingham (City), March 9.	2. Failure to specify on notice the period of employment, meals, &c.	1	—	0 7 6
John McCarty, Back 7, Vyse St., Birmingham, *Gold Cutter, F.*	Do.	Do. do.	1	—	0 7 6
E. Williams, 67, Vyse St., Birmingham, *Jeweller, W.*	Birmingham (City), October 12.	Do. do.	1	1 0 0	0 10 6
		H. Cleanliness, Ventilation, Overcrowding.			
Wright, Dain, & Peyton, Lease Lane, Birmingham, *Letterpress Printers, F.*	Birmingham (City), March 2.	1. Failure to limewash factory, &c.	1*a*	—	0 9 6
F. Whitfield & Co., Oxford St., Birmingham, *Safe Manufacturers, F.*	Birmingham (City), March 30.	Do. do.	1	3 0 0	0 10 6
G. Bowen & Sons, 46, Augusta St., Birmingham, *Silversmiths, F.*	Birmingham (City), April 27.	Do. do.	1	2 0 0	0 14 0
William Foster & Co., 46, Barr St., Birmingham, *Brassfounders, F.*	Birmingham (City), October 5.	Do. do.	1	—	0 7 6
		II.—CHILDREN.			
		K. Age, Fitness, &c., of Children.			
W. J. Anthony, 47½, Great Hampton St., Birmingham, *Stamper and Piercer, F.*	Birmingham (City), January 26.	3. Without certificate of fitness ..	1	0 10 0	0 14 0
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
Samuel Levi, 16, Frederick St., Birmingham, *Jeweller, F.*	Birmingham (City), January 26.	Employing young person under 16 without certificate of fitness.	1	2 0 0	0 14 0
Appleby & Co., Ltd., 124, Vyse St., Birmingham, *Gold Ring Makers, F.*	Do.	Do. do.	2	1 0 0	1 4 0
Trevitt & Sons, 29, Augusta St., Birmingham, *Chain Makers, F.*	Birmingham (City), February 9.	Do. do.	1	1 0 0	0 14 0
Birmingham Lamp & Gas Fittings Co., Dudley Road, Birmingham, *Lamp Manufacturers, F.*	Do.	Do. do.	1	0 5 0	0 17 6
W. Perry, 7, Regent Parade, Birmingham, *Metal Spinner, F.*	Birmingham (City), February 16.	Do. do.	1	2 0 0	0 14 0
Geo. Slater, 167, Vyse St., Birmingham, *Electroplater, F.*	Do.	Do. do.	1	2 0 0	0 14 0
Jones & Crompton, 36, Spencer St., Birmingham, *Silversmiths, F.*	Do.	Do. do.	1	2 0 0	0 14 0
W. H. Clutterbuck, 50, Northampton St., Birmingham, *Jeweller, F*	Do.	Do. do.	2	4 0 0	1 8 0
Edwin Edmonds, 31A, Warstone Lane, Birmingham, *Compass Maker, F.*	Birmingham (City), February 23.	Do. do.	1	1 0 0	0 14 0
Jas. Rogers, Back 7, Warstone Lane, Birmingham, *Silversmith, F.*	Do.	Do. do.	1	1 0 0	0 14 0
C. H. Cheshire, 3, Northampton St., Birmingham, *Jeweller, F.*	Birmingham (City), March 2.	Do do.	2	4 0 0	1 8 0
Tom Hayes, 21, Spencer St., Birmingham, *Silversmith, F.*	Birmingham (City), March 30.	Do. do.	1	1 0 0	0 14 0

a.—Withdrawn on payment of costs.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XI.—BIRMINGHAM DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		Q. Fitness, &c.—*cont.*			
G. Cadby & Sons, 28, Tenby St., Birmingham, *Metal Polishers, F.*	Birmingham (City), April 27.	Employing young person under 16 without certificate of fitness.	3	6 0 0	3 12 0
T. Perks & Sons, 84, Vyse St., Birmingham, *Jewellers, F.*	Do.	Do. do.	3	6 0 0	3 12 0
Geo. Freeman, 39, St. Paul's Square, Birmingham, *Electroplate Manufacturer, F.*	Birmingham (City), May 4.	Do. do.	1	—	0 14 0
Robert Birbeck & Sons, Gt. Charles St., Birmingham, *Printers, F.*	Birmingham (City), May 11.	Do. do.	1	2 0 0	0 16 6
Wilby Pedal Co., 6, Oozells St., Birmingham, *Cycle Pedal Makers, F.*	Birmingham (City), May 25.	Do. do.	2	1 0 0	1 7 0
S. Clarke & Sons, Henrietta St., Birmingham, *Button Makers, F.*	Birmingham (City), July 20.	Do. do.	2	1 0 0	1 4 0
Hoskins Bros., Francis Road, Hay Mills, *Woven Wire Mattress Manufacturers, F.*	Acocks Green (County), July 26.	Do. do.	1	0 10 0	0 8 6
Jos. Tomey & Sons, Ltd., 29, Catherine St., Aston, *Glass Manufacturers, F.*	Birmingham (County), October 8.	Do. do.	1	0 10 0	0 12 6
***Henry Boucher**, Bishopsgate St., Birmingham, *Brass Rod Manufacturer, F.*	Birmingham (City), November 2.	Do. do.	3	1 0 0	2 0 0
Fred Marchant, Shadwell St., Birmingham, *Biscuit Baker, F.*	Do.	Do. do.	1	1 0 0	0 14 0
Martin Hasluck & Co., 139½, Park Road, Aston, *Brassfounders, F.*	Birmingham (County), November 5.	Do do.	2	1 0 0	1 5 0
Charles Twigg & Co., 72, Potters' Hill, Aston, *Stampers and Piercers, F.*	Do.	Do. do.	1	0 5 0	0 10 6
Thomas Wilkinson, Payne's Lane, Coventry, *Loom Manufacturer, F.*	Coventry (City), November 7.	Do. do.	2	0 2 6	0 13 4
John Wall, 8, Vyse St., Birmingham, *Jeweller, F.*	Birmingham (City), November 9.	Do. do.	3	1 10 0	2 2 0
Whitehouse & Son, 52, Vyse St., Birmingham, *Gold Chain Manufacturers, F.*	Do.	Do. do.	1	1 10 0	0 14 0
Bernard Armstrong & Brother, 27-29, Pemberton St., Birmingham, *Watch-key Manufacturers, F.*	Do.	Do. do.	3	2 0 0	2 2 0
Lucas & Co., 22, Hylton St., Birmingham, *Silversmiths, F.*	Do.	Do. do.	1	1 10 0	0 14 0
Thos. Hope, 304½, Broad St., Birmingham, *Metal Smallware Manufacturer, F.*	Birmingham (City), November 23.	Do. do.	1	2 0 0	0 14 0
S. Blanckensee & Son, 15, Frederick St., Birmingham, *Jewellers, F.*	Birmingham (City), December 14.	Do. do.	2	1 0 0	1 4 0
Percy Light, 80, Charlotte St., Birmingham, *Electroplate Manufacturer, F.*	Do.	Do. do.	1	1 0 0	0 14 0
New "Rapid" Cycle Co., Icknield St., Birmingham, *Cycle Manufacturers, F.*	Do.	Do. do.	2	1 0 0	1 0 6
		R. Employment of Young Persons at Illegal Times.			
D. Rosenthal, 91, Great Colmore St., Birmingham, *Tailor, W.*	Birmingham (City), April 6.	1. Before or after legal hours ..	1*a*	—	—
S. Capland, 76, Aston St., Birmingham, *Tailor, W.*	Birmingham (City), July 20.	Do. do.	1	1 0 0	0 14 0
Malvern Mineral Water Co., 8, Church St., Smethwick, *Aërated Water Manufacturers, F.*	Smethwick (Borough), August 1.	Do. do.	1	0 10 0	0 8 6
J. W. Walsh, Rea St. South, Birmingham, *Aërated Water Manufacturer, F.*	Birmingham (City), August 10.	Do. do.	1	1 0 0	0 14 0
Fisher, Brown, & Bayley, Ltd., 120, Lionel St., Birmingham, *Bedstead Makers, F.*	Birmingham (City), November 2.	Do. do.	1	1 0 0	0 14 0
Joseph Lester Vero, Station St., Atherstone, *Cork Sock Manufacturer, W.*	Atherstone (County), November 13.	Do. do.	3	1 0 0	1 0 6
M. L. Jacobs & Co., 1, Regent Place, Birmingham, *Jewellers, W.*	Birmingham (City), December 7.	Do do.	1	0 10 0	0 12 0
G. F. Parker, 25, City Road, Birmingham, *Dressmaker, W.*	Birmingham (City), July 20.	4. Beyond legal hour on half-holiday.	2	2 0 0	1 12 0
Stanford Bros., 55, Oldbury Road, Smethwick, *Aërated Water Manufacturers, F.*	Smethwick (Borough), August 1.	Do. do.	2	—	0 10 0

a.—Dismissed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XI.—BIRMINGHAM DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		E. Employment of Young Persons at Illegal Times—*cont.*			
Madam Langford, 270, Corporation St., Birmingham, *Dressmaker, W.*	Birmingham (City), December 7.	4. Beyond legal hour on half-holiday.	2	1 0 0	1 8 0
Despatch Brass Foundry Co., 153, Pershore St., Birmingham, *Brassfounders, F.*	Birmingham (City), December 14.	7. In prohibited room during meal hours.	1	1 0 0	0 14 0
John Turton, 160½, Darwin St., Birmingham, *Tintack Boxer, W.*	Birmingham (City), June 22.	8. Beyond legal period without interval for meals.	1	2 0 0	0 14 0
Arthur James Button, 13, James St., Birmingham, *Letterpress Printer, F.*	Do.	Do. do.	1*a*	—	0 10 0
W. & J. Player, Ltd., 47 & 48, Lionel St., Birmingham, *Engineers, F.*	Birmingham (City), November 23.	Do. do.	1	2 0 0	0 14 0
Griffiths & Browett, Ltd., 66, Bradford St., Birmingham, *Enamelled Iron Manufacturers, F.*	Birmingham (City), December 14.	Do. do.	2	2 0 0	1 4 0
J. Timmins, Caroline St., Birmingham, *Castor Maker, F.*	Birmingham (City), April 27.	9. At night	1	2 0 0	0 14 0
Durban & Co., 41, Frederick St., Birmingham, *Jewellers, F.*	Do.	Do. do.	5	5 0 0	3 3 0
Daniel Roy, 101, High St., Selly Oak, *Baker, W.*	Northfield (County), July 13.	Do. do.	1	1 0 0	0 14 6
Sarah Trotman, 31, Westfield Road, Smethwick, *Dressmaker, W.*	Smethwick (Borough), August 1.	Do. do.	2	2 0 0	0 13 6
Scribbans & Sons, 64, Montague Road, Smethwick, *Bakers, F.*	Smethwick (Borough), October 31.	Do. do.	4	2 0 0	1 15 0
W. & J. Player, Ltd., 47 & 48, Lionel Street, Birmingham, *Engineers, F.*	Birmingham (City), November 23.	Do. do.	1	2 0 0	0 15 0
		S. Occupation of Young Persons.			
†Stanley Bros., Ltd., Stockingford, Nuneaton, *Brick Manufacturers, F.*	Nuneaton (Borough), October 11.	1. In prohibited industry	3*b*	—	—
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
J. W. Walsh, Rea St. South, Birmingham, *Aërated Water Manufacturer, F.*	Birmingham (City), August 10.	1. Before or after legal hours ..	1	—	0 11 0
M. L. Jacobs & Co., 1, Regent Place, Birmingham, *Jewellers, W.*	Birmingham (City), December 7.	Do. do.	1	0 10 0	0 12 0
Turner & Saunders, 88, Bristol St., Birmingham, *Dressmakers, W.*	Birmingham (City), June 29.	4. Beyond legal hour on half-holiday.	2	0 10 0	1 7 0
Stanford Bros., 55, Oldbury Road, Smethwick, *Aërated Water Manufacturers, F.*	Smethwick (Borough), August 1.	Do do.	1	5 0 0	0 8 6
Henry Hawkins, 86½, Great Hampton St., Birmingham, *Chain Maker, W.*	Birmingham (City), November 23.	9. At night	2	2 0 0	1 4 6

XII.—WORCESTER DISTRICT.

Nil.

a.—Withdrawn on payment of costs.
b.—Dismissed on appeal, the decision of the Justices was reversed in April 1901.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XIII.—WOLVERHAMPTON DISTRICT.

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL.		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
Joseph Adams, Halesowen St., Blackheath, *Socket Manufacturer, F.*	Old Hill (County), June 20.	3. Keeping register of children and young persons, &c.	1	1 0 0	0 15 0
Samuel Webb, Stafford St., Bilston, *Aërated Water Manufacturer, F.*	Wolverhampton (Stipendiary's Court), July 6.	Do. do.	1	1 0 0	0 8 2
Samuel Edge, Millfields Road, Bilston, *Boot Manufacturer, F.*	Bilston (Stipendiary's Court), October 2.	Do. do.	1	1 0 0	0 8 6
Geo. Wood & Sons, Tividale, Tipton, *Brick Manufacturers, F.*	Old Hill (County), October 3.	Do. do.	1	0 10 0	0 8 6
R. H. Mason, Castle Hill, Oswestry, *Engineer, F.*	Oswestry (Borough), November 30.	Do. do.	1	0 1 0	0 7 6
J. & J. Yardley & Co., Ltd., Market St., Wolverhampton, *Brewers, F.*	Wolverhampton (Stipendary's Court), July 25.	7. Notifying accident	1	3 0 0	0 12 0
Henry Hall & Co., Old Level Iron Works, Brierley Hill, *Iron Manufacturers, F.*	Brierley Hill (County), December 6.	Do. do.	1	0 5 0	0 13 0
		B. Posting of Abstracts, Notices, &c.			
Blanche Botwood, 258, Castle St., Dudley, *Dressmaker, W.*	Dudley (Borough), January 8.	1. Failure to affix abstracts and notices.	1	0 10 0	0 13 6
Joseph Powell, Great Hales St., Market Drayton, *Coach Builder, W.*	Market Drayton (County), June 28.	Do. do.	1	0 10 0	0 5 6
R. Wilson & Son, Ackleton, Wolverhampton, *Maltsters, F.*	Bridgnorth (County), September 8.	Do. do	1	0 5 0	0 6 6
John Fisher, 15, High St., Bilston, *Baker, W...*	Bilston (Stipendiary's Court), October 2.	Do. do.	1	1 0 0	0 8 6
Joseph Smith, Walsall Road, Willenhall, *Lock Manufacturer, F.*	Wolverhampton (Stipendiary's Court), October 31.	Do. do.	1	0 10 0	0 8 0
		II.—CHILDREN.			
		K. Age, Fitness, &c., of Children.			
Geo. Gadd & Co., Ltd., Church Lane, Dudley Port, *Iron Manufacturers, F.*	Wednesbury (Stipendiary'sCourt)April 24.	3. Without certificate of fitness ..	2	2 0 0	1 3 8
Joseph Adams, Halesowen St., Blackheath, *Socket Manufacturer, F.*	Old Hill (County), June 20.	Do. do.	2	1 0 0	1 10 0
Coalbrookdale Co., Ltd., Coalbrookdale, *Ironfounders and Engineers, F.*	Broseley (County), November 6.	Do. do.	2	1 0 0	1 1 5
		L. Employment of Children at Illegal Times.			
William Jones, trading as W. & P. Jones, Jackfields, *Tile Manufacturer, F.*	Ironbridge (County), March 27.	1. Before or after legal hours ..	1	1 0 0	0 11 6
John Fisher, 15, High St., Bilston, *Baker, W...*	Bilston (Stipendiary's Court), October 2.	Do. do.	1	3 0 0	0 11 6
Roberts & Cooper, Great Bridge Iron and Steel Works, Great Bridge, Tipton, *Iron Manufacturers, F.*	Wednesbury (Stipendiary'sCourt)April 24.	9. At night	1	3 0 0	0 10 6
Geo. Gadd & Co., Ltd., Church Lane, Dudley Port, *Iron Manufacturers, F.*	Do.	Do. do.	1	3 0 0	0 11 10
***Isaac Jenks & Son**, Minerva Works, Horseley Fields, Wolverhampton, *Iron Mill Occupiers, F.*	Wolverhampton (Stipendiary's Court), November 16.	Do. do.	1	3 0 0	0 9 6
Henry Hall & Co., Old Level Iron Works, Brierley Hill, *Iron Manufacturers, F.*	Brierley Hill (County), December 6.	Do. do.	2	8 0 0	1 2 6
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
J. Whorton & Co., Oakeywell St., Dudley, *Fender Manufacturers, F.*	Dudley (Borough), January 8.	Employing young person under 16 without certificate of fitness.	1	0 10 0	0 11 6
David Lloyd, King St., Dudley, *Boot Manufacturer, F.*	Dudley (Borough), April 30.	Do. do.	1	0 5 0	0 12 6
Jesse Billingham & Son, Maratime Works, Fox Oak St., Cradley Heath, *Chain Manufacturers, F.*	Old Hill (Borough), May 9.	Do. do.	1	0 5 0	0 14 0

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XIII.—WOLVERHAMPTON DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		Q. Fitness, &c.—*cont.*			
Joseph Adams, Halesowen St., Blackheath, *Socket Manufacturer, F.*	Old Hill (County), June 20.	Employing young person under 16 without certificate of fitness.	1	0 10 0	0 15 0
Samuel Webb, Stafford St., Bilston, *Aërated Water Manufacturer, F.*	Wolverhampton (Stipendiary's Court), July 6.	Do. do.	1	1 0 0	0 11 2
J. Wilkinson, junr., Freebodie, Dudley, *Anvil and Vice Manufacturer, F.*	Dudley (Borough), September 10.	Do. do.	1	0 10 0	0 11 6
Bournehills & Withymoor Collieries & Fire Clay Co., Ltd., near Netherton, Dudley, *Brick Manufacturers, F.*	Do.	Do. do.	4	1 0 0	2 8 0
Cheshire, Shropshire, & North Wales Farmers' Supply Association, Ltd., Grindley Brook, Whitchurch, *Flour Manufacturers, F.*	Bradford-Whitchurch (County), September 26.	Do. do.	1	0 5 0	0 10 6
Samuel Edge, Millfields Road, Bilston, *Boot Manufacturer, F.*	Bilston (Stipendiary's Court), October 2.	Do. do.	1	1 0 0	0 11 6
Geo. Wood & Sons, Tividale, Tipton, *Brick Manufacturers, F.*	Old Hill (County), October 3.	Do. do.	1	0 16 0	0 12 6
Coalbrookdale Co., Ltd., Coalbrookdale, *Ironfounders and Engineers, F.*	Broseley (County), November 6.	Do. do.	3	1 10 0	1 12 1
Wolverhampton Gas Co., Stafford Road, Wolverhampton, *Gas Manufacturers, F.*	Wolverhampton (Stipendiary's Court), November 16.	Do. do.	3	1 10 0	1 6 6
John Brown, Chapel St., Halesowen, *Shovel Manufacturer, F.*	Halesowen (County), November 20.	Do. do	1	0 5 0	0 13 0
R. H. Mason, Castle Hill, Oswestry, *Engineer, F.*	Oswestry (Borough), November 30.	Do. do.	1	0 1 0	0 10 0
Histon & Bird, Sheet End, near Dudley, *Millers, F.*	Brierley Hill (County), December 6.	Do. do.	1	0 10 0	0 12 6
D. H. & S. Diamond Cycle Co., Sedgeley St., Wolverhampton, *Cycle Manufacturers, F.*	Wolverhampton (Stipendiary's Court), December 21.	Do. do.	1	0 10 0	0 10 6
Wm. Roberts, Wanderers' Avenue, Dudley Road, Wolverhampton, *Builder, F.*	Do.	Do. do.	1	0 10 0	0 10 6
		R. Employment of Young Persons at Illegal Times.			
G. Rogers & Son, Oswald Road, Oswestry, *Coach Builders, F.*	Oswestry (Borough), January 26.	1. Before or after legal hours ..	1	0 1 0	0 9 0
A. W. Gower & Son, Stafford St., Market Drayton, *Agricultural Implement Manufacturers, F.*	Market Drayton (County), April 28.	Do. do.	1	0 10 0	0 10 0
Joseph Powell, Great Hales St., Market Drayton, *Coach Builder, W.*	Market Drayton (County), June 28.	Do. do.	1	0 10 0	0 10 0
Eliza Hutchinson, Bark Hill, Whitchurch, *Dressmaker, W.*	Whitchurch (County), July 26.	Do. do.	1	0 5 0	0 10 0
*Thomas Jackson, Gates St., Wolverhampton, *Baker, F.*	Wolverhampton (Stipendiary's Court), November 16.	Do. do.	1	1 0 0	0 9 6
*E. Thomas & Co., The Cross, Oswestry, *Engineers, F.*	Oswestry (Borough), December 28.	Do. do.	1	1 0 0	0 10 0
R. Wilson & Son, Ackleton, Wolverhampton, *Maltsters, F.*	Bridgnorth (County), September 8.	4. Beyond legal hour on half-holiday.	1	0 5 0	0 10 0
*E. Thomas & Co., The Cross, Oswestry, *Sheet-iron Workers, F.*	Oswestry (Borough), January 26.	9. At night	1	0 2 6	0 9 0
Lilleshall Co., Ltd., Prior's Lee, Shifnal, *Steel Manufacturers, F.*	Shifnal (County), February 2.	Do. do.	1	0 16 0	0 12 6
J. Paterson & Son, Onibury, Ludlow, *Bendware Turnery Manufacturers, F.*	Ludlow (County), April 2.	Do. do.	1	2 0 0	0 10 0
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
H. & J. Hill, Etna Foundry, Birmingham St., Willenhall, *Ironfounders, F.*	Wolverhampton (Stipendiary's Court), October 31.	1. Before or after legal hours ..	2	1 0 0	1 3 0
Joseph Smith, Walsall Road, Willenhall, *Lock Manufacturer, F.*	Do.	Do. do	1	0 10 0	0 11 6

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XIII.—WOLVERHAMPTON DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		V.—DANGEROUS TRADES, &c.		£ s. d.	£ s. d.
Edwin Scoltock, Salthouses, Jackfields, Dipper, employed by Maw & Co., Jackfields, *Encaustic Tile Manufacturers, F.*	Ironbridge (County), June 19.	1. Failure to observe or affix Special Rules. Earthenware and China Works:— Failure to provide or wear overalls and head coverings.	1	—	0 7 6
Henry Meredith, Broseley Wood, Dipper, employed by Maw & Co., Jackfields, *Encaustic Tile Manufacturers, F.*	Do.	Do. do.	1	—	0 7 6
Richard Woodberry, Bottler, employed by Samuel Webb, Stafford St., Bilston, *Aërated Water Manufacturer, F.*	Wolverhampton (Stipendiary's Court), July 6.	Aërated Water Works:— Failure to wear face guards, masks, veils, or gauntlets.	1	1 0 0	0 8 2

XIV.—SOUTH STAFFORDSHIRE DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
Tupper & Co., Ltd., Britannia Works, Albion, West Bromwich, *Ironmasters, F.*	West Bromwich (Stipendiary's Court), April 30.	3. Keeping register of children and young persons, &c.	1*a*	0 10 0	0 10 0
***S. J. Sadler**, Portway Works, Oldbury, *Brick Manufacturer, F.*	Oldbury (County), May 1.	Do. do	1	2 0 0	0 7 6
Lords, Ltd., Old Baths, Littleton St. West, Walsall, *Aërated Water Manufacturers, F.*	Walsall (Borough), July 11.	Do. do.	1	1 0 0	0 10 0
Bromford Iron Co., Bromford Lane, West Bromwich, *Ironmasters, F.*	West Bromwich (Stipendiary's Court), October 1.	Do. do.	1	2 0 0	0 9 4
Bright & Langham, Wood Lane and Bush Farm Works, West Bromwich, *Ironmasters, F.*	West Bromwich (Stipendiary's Court), October 29.	Do. do.	1	1 0 0	0 16 6
Hy. Wm. Hulse, 127, Villa Road, Handsworth, *Milliner, W.*	Handsworth (County), August 3.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	1	—	0 6 0
Geo. Wilkinson & Co., Ltd., Dunkirk Works, Charles St., West Bromwich, *Iron Mill Occupiers, F.*	West Bromwich (Stipendiary's Court), March 5.	6. Keeping register of accidents and diseases, or keeping it open to inspection.	1	3 0 0	0 15 0
John Russell & Co., Ltd., Cyclops Works, Pleck Road, Walsall, *Ironmasters, F.*	Walsall (Borough), October 10.	Do. do.	1	1 0 0	0 11 6
Walsall Electrical Co., Ltd., Bridge St., Walsall, *Electrical Engineers, F.*	Do.	Do. do.	1	0 10 0	0 10 6
John Freakley & Co., Ltd., Gold's Green, West Bromwich, *Slag Crushers, F.*	West Bromwich (Stipendiary's Court), October 1.	7. Notifying accident	1	0 2 6	0 17 6
		B. Posting of Abstracts, Notices, &c.			
F. W. Clews, 45-46, Spout Lane, Walsall, *Baker, W.*	Walsall (Borough). November 28.	2. Failure to specify on notice the period of employment, meals, &c.	1	0 5 0	0 9 0
		D. Fencing; Dangerous Machinery, &c.			
Barton & Mold, Beehive Foundry, Birchills, Walsall, *Harness Furniture Manufacturers, F.*	Walsall (Borough), October 17.	1. Failure to fence dangerous machinery.	1	1 0 0	0 10 0
Boys & Boden, James Bridge Sawmills, Station St., Darlaston, *Sawmillers, F.*	Wednesbury (Stipendiary's Court), April 24.	2. Penal Compensation in cases where death or injury has resulted from:— Failure to fence machinery.	1	5 0 0	1 9 6
John Webb, Villa Road, Handsworth, *Builder, F.*	Handsworth (County), October 26.	Do. do.	1	1 0 0	0 14 0
Patent Shaft & Axletree Co., Ltd., Brunswick Works, Wednesbury, *Ironmasters, F.*	Wednesbury (Stipendiary's Court), December 4.	Do. do.	1	10 0 0	0 10 6

a.—Defendant summoned the employer of the boy as "actual offender," but case against him was dismissed the Magistrate holding that defenants had not used "due diligence to enforce the Act."

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XIV.—SOUTH STAFFORDSHIRE DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		II.—CHILDREN.		£ s. d.	£ s. d.
		K. Age, Fitness, &c., of Children.			
Thomas Oliver, Sandwell Rope Works, Walsall St., West Bromwich, *Rope Manufacturer, W.*	West Bromwich (Stipendiary's Court), May 14.	1. Under legal age	1	0 2 6	0 13 6
Bromford Iron Co., Bromford Lane, West Bromwich, *Ironmasters, F.*	West Bromwich (Stipendiary's Court), October 1.	3. Without certificate of fitness ..	1	3 0 0	0 9 4
		L. Employment of Children at Illegal Times.			
F. W. Clews, 45-46, Spout Lane, Walsall, *Baker, W.*	Walsall (Borough), November 28.	1. Before or after legal hours ..	1	0 5 0	0 9 0
Yardley & Carter, 40, Willenhall St., Darlaston, *Latch Manufacturers, W.*	Wednesbury (Stipendiary's Court), May 8.	8. Otherwise than in morning or afternoon sets or on alternate days.	1	1 0 0	0 13 6
John Webb Lasenby, Lichfield Road, Rushall, Walsall, *Cabinetmaker, W.*	Rushall (County), August 20	Do. do.	1	0 5 0	0 8 6
Thomas Taylor, 54, Green Lane, Walsall, *Bridle Cutter, W.*	Walsall (Borough), September 12.	Do. do.	1	1 10 0	0 8 0
Bromford Iron Co., Bromford Lane, West Bromwich, *Ironmasters, F.*	West Bromwich (Stipendiary's Court), October 1.	9. At night	1	5 0 0	0 16 4
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
White & Smallman, Ltd., Crown Mills, Great Bridge St., West Bromwich, *Moulders' Blacking Manufacturers, F.*	West Bromwich (Stipendiary's Court), April 2.	Employing young person under 16 without certificate of fitness.	1	1 0 0	0 11 6
Tupper & Co., Ltd., Britannia Works, Albion, West Bromwich, *Ironmasters, F.*	West Bromwich (Stipendiary's Court), April 30.	Do. do.	1a	1 0 0	0 10 0
*S. J. Sadler, Portway Works, Oldbury, *Brick Manufacturer, F.*	Oldbury (County), May 1.	Do. do.	1	1 0 0	0 13 6
Lords, Ltd., Old Baths, Littleton St. West, Walsall, *Aërated Water Manufacturers, F.*	Walsall (Borough), July 11.	Do. do.	2	1 0 0	0 17 0
Barton & Mold, Beehive Foundry, Birchills, Walsall, *Harness Furniture Manufacturers, F.*	Walsall (Borough), October 17.	Do. do.	2	1 0 0	0 16 0
*Oak Tanning Co., Ltd., Hatherton St., Walsall, *Tanners, F.*	Walsall (Borough), November 28.	Do. do.	1	0 10 0	0 9 0
		R. Employment of Young Persons at Illegal Times.			
Alfred Hateley, Back Butts House, Mill Lane, Walsall, *Harness Maker, W.*	Walsall (Borough), March 28.	1. Before or after legal hours ..	2	0 10 0	0 13 6
Cooper, Webb, Jones & Co., Stockwell Works, Littleton St., E., Walsall, *Harness Manufacturers, F.*	Walsall (Borough), July 11.	Do. do.	1	1 0 0	0 9 0
Ratcliff & Ratcliff, Great Bridge Works, Gold's Hill, West Bromwich, *Tube Manufacturers, F.*	Wednesbury (Stipendiary's Court), July 31.	Do. do.	2	4 0 0	1 6 0
Hy. Wm. Hulse, 127, Villa Road, Handsworth, *Milliner, W.*	Handsworth (County), August 3.	Do. do.	1	0 1 0	0 13 6
Wm. Clement Murray, 76, Mount St., Walsall, *Saddletree Maker, W.*	Walsall (Borough), November 28.	Do. do.	1	0 5 0	0 7 0

a.—Defendants summoned the employer of the boy as "actual offender," but case against him was dismissed, the Magistrate holding defendants had not used "due diligence to enforce the Act."

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XIV.—SOUTH STAFFORDSHIRE DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		S. Occupation of Young Persons.			
Leamore Brick Co., Green Lane, Birchills, Walsall, *Brickmakers, F.*	Walsall (Borough), August 15.	1. In prohibited industry	1	3 0 0	0 12 6
Darlaston Brick Co., Heath Road, Darlaston, *Brickmakers, F.*	Wednesbury (Stipendiary's Court), September 11.	2. Cleaning mill-gearing or other dangerous parts of machinery in motion.	1	2 0 0	0 15 0
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
S. & S. A. Wright, 219, High St., West Bromwich, *Milliners, W.*	West Bromwich (Stipendiary's Court), December 10.	9. At night	1	1 0 0	0 8 6
J. G. Proffitt, 176, Queen St., Walsall, *Saddletree Manufacturer, F.*	Walsall (Borough), October 17.	**XIV.—TRUCK ACTS.**	2*a*	2 0 0	1 1 0

XV.—NORTH STAFFORDSHIRE DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards :—			
A. Elson & Co., Horninglow St., Burton, *Coppersmiths, F.*	Burton (Borough), June 22.	3. Keeping register of children and young persons, &c.	1	0 5 0	0 10 6
*G. H. Plant & Co., Ltd., Leek, *Box Makers, F.*	Leek (County), July 25.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	7	—	3 6 6
		B. Posting of Abstracts, Notices, &c.			
Jas. Topham, Hanley, *Cooper, W.*	Hanley (Stipendiary's Court), March 12.	2. Failure to specify on notice the period of employment, meals, &c.	1	0 10 0	0 13 0
		D. Fencing; Dangerous Machinery, &c.			
Isaac Ward & Son, Uttoxeter, *Joiners and Builders, F.*	Uttoxeter (County), July 4.	1. Failure to fence dangerous machinery.	1*b*	—	—
		E. Cleanliness, Ventilation, Overcrowding.			
Cooke & Co., Eastgate St., Stafford, *Shoe Manufacturers, F.*	Stafford (Borough), February 22.	1. Failure to limewash factory, &c.	1	1 0 0	0 7 0

a.—Fine in one case, costs in both.
b.—Withdrawn.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XV.—NORTH STAFFORDSHIRE DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS.		£ s. d.	£ s. d.
		Q. Fitness, &c.			
†T. & R. Boote, Ltd., Newport Lane, Burslem, *Earthenware Manufacturers, F.*	Burslem (Stipendiary's Court), February 20.	Employing young person under 16 without certificate of fitness.	1	0 10 0	0 17 0
A. T. Poole, Hanley, *Coach Builder, F.*	Hanley (Stipendiary's Court), March 12.	Do. do.	1	0 10 0	0 13 6
W. S. Matthews & Sons, Stafford, *Legging Manufacturers, F.*	Stafford (Borough), April 12.	Do. do.	1	0 10 0	0 9 6
Fenton Engineering Co., Fenton, *Engineers, F.*	Longton (Stipendiary's Court), July 4.	Do. do.	1	1 0 0	0 14 0
E. Amies, Stafford, *Cabinet Maker, F.*	Stafford (Borough), December 6.	Do. do.	2	1 0 0	0 18 0
*A. Elson & Co., Burton, *Coppersmiths, F.* ..	Burton (Borough), December 28.	Do. do.	1	1 0 0	0 17 6
		R. Employment of Young Persons at Illegal Times.			
Kerr, Stuart & Co., Fenton, *Engineers, F.* ..	Stoke (Stipendiary's Court), February 16.	1. Before or after legal hours ..	4	2 0 0	2 16 0
Wm. Teeton, Stafford St., Hanley, *Milliner, W.*	Hanley (Stipendiary's Court), February 19.	Do. do.	1	1 0 0	0 13 0
Jno. Scott & Co., Stafford, *Shoe Manufacturers, F.*	Stafford (Borough), May 14.	Do. do.	2	1 0 0	0 19 0
A. G. Hall, Liverpool Road, Newcastle, *Baker, W.*	Newcastle-under-Lyme (Borough), May 28.	Do. do.	1	0 10 0	0 11 6
*G. H. Plant & Co., Ltd., Leek, *Box Makers, F.*	Leek (County), July 25	Do. do.	2	0 5 0	2 2 0
J. H. Lasbrey, Uttoxeter, *Dressmaker, W.* ..	Uttoxeter (County), September 12.	Do. do.	4	1 0 0	2 8 0
H. Broadhurst, Davenport St., Burslem, *Dressmaker, W.*	Burslem (Stipendiary's Court), September 11.	4. Beyond legal hour on half-holiday.	2	1 0 0	1 10 0
*A. Bayley, Market Place, Uttoxeter, *Baker, W.*	Uttoxeter (County), June 20.	6. At meal times	1a	—	0 7 0
J. H. Wedgwood, Burslem, *Baker, W.*... ..	Burslem (Stipendiary's Court), January 2.	9. At night	1	2 0 0	0 14 0
John Massey, Smallthorne, *Baker, W.*... ..	Do.	Do. do.	1	2 0 0	0 14 0
Wardle & Davenport, Leek, *Silk Manufacturers, F.*	Leek (County), February 21.	Do. do.	1	1 0 0	0 13 6
Hy. Scott, Foregate St., Stafford, *Baker, W.* ..	Stafford (Borough), May 14.	Do. do.	1	1 0 0	0 9 6
R. Richardson, Littleworth, Stafford, *Baker, W.*	Do.	Do. do.	1	0 10 0	0 10 6
M. A. Thomas, Sandon Road, Stafford, *Baker, W.*	Do.	Do. do.	1	0 10 0	0 14 6
H. J. Durber, Swan Passage, Hanley, *Baker, W.*	Hanley (Stipendiary's Court), December 10.	Do. do.	1	1 0 0	0 14 0
W. Milner, Dipper, employed by Barkers & Kent, Ltd., Fenton, *Earthenware Manufacturers, F.*	Stoke (Stipendiary's Court), June 8.	10. On Sunday	1b	1 0 0	0 19 6
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
King & Co., Station Street, Burton, *Tailors, W.*	Burton (Borough), June 22.	6. At meal times	1	0 2 6	0 17 6

a.—Withdrawn on payment of costs.
b.—Information laid against the firm, who summoned the "actual offender."

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XV.—NORTH STAFFORDSHIRE DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		V.—DANGEROUS TRADES, &c.		£ s. d.	£ s. d.
		1. Failure to observe or affix Special Rules. Earthenware and China works:—			
Thomas Betteridge, Woodville, *Earthenware Manufacturer, F.*	Swadlincote (County), January 30.	Failure to have persons examined once a month by certifying surgeon.	1	0 5 6	0 12 0
†**Thomas Poole**, Cobden Works, Longton, *China Manufacturer, F.*	Fenton (Stipendiary's Court), February 21.	Re-employing a person after suspension without written sanction of certifying surgeon.	1	1 0 0	1 1 6
†**Burgess & Leigh**, Middleport Works, Burslem, *Earthenware Manufacturers, F.*	Burslem (Stipendiary's Court), February 20.	Failure to enter in special health register a person employed in dipping-house.	1	0 10 0	0 18 0
†**T. & R. Boote, Ltd.**, Newport Lane, Burslem, *Earthenware Manufacturers, F.*	Do.	Do. do.	1	0 10 0	0 8 6
†**Thomas Poole**, Cobden Works, Longton, *China Manufacturer, F.*	Fenton (Stipendiary's Court), February 21.	Failure to provide or wear overalls and head coverings.	1	1 0 0	0 18 0
†**Mintons, Ltd.**, London Road, Stoke-on-Trent, *Earthenware Manufacturers, F.*	Do.	Do. do.	1	2 0 0	1 5 0
Wm. Fielding, Hanley, *Earthenware Manufacturer, F.*	Hanley (Stipendiary's Court), January 1.	Failure to provide or use fan.	1	1 0 0	0 7 6
Hill Top Pottery Co., Church Gresley, *Earthenware Manufacturers, F.*	Swadlincote (County), January 30.	Failure to provide and maintain proper washing conveniences.	1	0 0 6	0 7 0
Thomas Betteridge, Woodville, *Earthenware Manufacturer, F.*	Do.	Do. do.	1	0 5 6	0 7 0
†**Doultons, Ltd.**, Nile St., Burslem, *Earthenware Manufacturers, F.*	Burslem (Stipendiary's Court), February 20.	Do. do.	1*a*	—	—
†**Burgess & Leigh**, Middleport Works, Burslem, *Earthenware Manufacturers, F.*	Burslem (Stipendiary's Court), February 20.	Failure to cleanse dipping-house boards every week.	1	1 0 0	1 3 6
Fredk. Shaw, Stafford, Bottler, employed by Hardman and Openshaw, Stafford, *Aërated Water Manufacturers, F.*	Stafford (Borough), April 12	Aërated Water Works:— Failure to wear face guards, masks, veils, or gauntlets.	1	0 10 0	0 7 0

XVI.—LEICESTER DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
Cigar Box Manufacturing Co., All Saints Road, Leicester, *Cigar Box Makers, F.*	Leicester (Borough), April 5.	1. Notification of commencement of occupation.	1	0 14 6	0 5 6
Hartshorn & Jesson, Acorn St., Leicester, *Boot and Shoe Manufacturers, F.*	Leicester (Borough), February 13.	3. Keeping register of children and young persons employed, &c.	1	1 0 0	0 9 0
John Parker, 9, Spinner St., Leicester, *Shoe Manufacturer, F.*	Leicester (Borough), April 5.	Do. do.	1	0 4 6	0 5 6
Geo. Cuffling & Co., Park Road, Ansty, *Shoe Manufacturers, F.*	Leicester (County), April 28.	Do. do.	1	2 0 0	0 17 0
Garner, White, & Breward, Stapleton Lane, Barwell, *Shoe Manufacturers, F.*	Hinckley (County), May 24.	Do. do.	1	0 10 0	0 14 0
Murcott & Payne, Bond St., Hinckley, *Shoe Manufacturers, F.*	Hinckley (County), July 19.	Do. do.	1	0 5 0	0 12 6
Wigston Foundry Co., Ltd., Canal St., South Wigston, *Ironfounders, F.*	Leicester (County), July 28.	Do. do.	1	0 2 0	0 18 0
Macdonald, Scott & Co., Countesthorpe Road, South Wigston, *Letterpress Printers, F.*	Do.	Do. do.	1	1 0 0	0 18 0
Hartshorn & Jesson, Acorn St., Leicester, *Boot and Shoe Manufacturers, F.*	Leicester (Borough), February 13.	7. Notifying accident	1	5 0 0	0 9 0
Cigar Box Manufacturing Co., All Saints Road, Leicester, *Cigar Box Makers, F.*	Leicester (Borough), April 5.	Do. do.	1	1 11 0	0 9 0

a.—Dismissed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XVI.—LEICESTER DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		E. Posting of Abstracts, Notices, &c.			
Burton Brewery Co., Ltd., Tamworth Road Ashby-de-la-Zouch, *Maltsters, W.*	Ashby-de-la-Zouch (County), October 20.	1. Failure to affix abstracts and notices.	1	0 10 6	0 10 6
		D. Fencing; Dangerous Machinery, &c.			
W. F. Harding, Sparrow Hill, Loughborough *Sawmiller, F.*	Loughborough (County), October 17.	1. Failure to fence dangerous machinery.	1	1 5 6	0 14 6
		II.—CHILDREN.			
		K. Age, Fitness, &c., of Children.			
Garner, White, & Breward, Stapleton Lane, Barwell, *Shoe Manufacturers, F.*	Hinckley (County), May 24.	3. Without certificate of fitness ..	1	0 10 0	0 14 0
		L. Employment of Children at Illegal Times.			
Thomas Pickett, Latimer St., Ansty, *Shoe Manufacturer, F.*	Leicester (County), April 23.	8. Otherwise than in morning and afternoon sets or on alternate days.	1	1 0 0	0 17 0
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
Hartshorn & Jesson, Acorn St., Leicester, *Boot and Shoe Manufacturers, F.*	Leicester (Borough), February 13.	Employing young person under 16 without certificate of fitness.	2	2 0 0	0 19 0
John Parker, 9, Spinner St., Leicester, *Shoe Manufacturer, F.*	Leicester (Borough), April 5.	Do. do.	1	1 11 0	0 9 0
Ibstock Collieries, Ltd., Ibstock, *Brick and Drain Pipe Manufacturers, F.*	Market Bosworth (County), May 2.	Do. do.	2	1 0 0	1 12 0
Swan, Preston, & Bray, Brook St., Sileby, *Shoe Manufacturers, F.*	Loughborough (County), July 11.	Do. do.	2	0 1 6	1 8 6
Murcott & Payne, Bond St., Hinckley, *Shoe Manufacturers, F.*	Hinckley (County), July 19.	Do. do.	1	0 5 0	0 12 6
Wigston Foundry Co., Ltd., Canal St., South Wigston, *Ironfounders, F.*	Leicester (County), July 26.	Do. do.	2	0 4 0	1 16 6
Macdonald, Scott & Co., Countesthorpe Road, South Wigston, *Letter Press Printers, F.*	Do.	Do. do.	2	2 0 0	1 16 0
*C. Sherriff & Co., Fleet Street, Leicester, *Shoe Manufacturers, F.*	Leicester (Borough), November 27.	Do. do.	2	0 2 0	0 18 0
		R. Employment of Young Persons at Illegal Times.			
J. J. Law, Holyland's Avenue, Leicester, *Shoe Manufacturer, F.*	Leicester (Borough), April 3.	1. Before or after legal hours ..	1	0 11 0	0 9 0
William Manton & Co., 111, Churchgate, Leicester, *Sandpaper and Emery Mould Manufacturers, F.*	Leicester (Borough), April 27.	Do. do.	2	5 2 0	0 18 0
J. J. Law, Holyland's Avenue, Leicester, *Shoe Manufacturer, F.*	Leicester (Borough), April 3.	8. Beyond legal period without interval for meals.	1	—	0 4 6

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XVII.—NOTTINGHAM DISTRICT.

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL.		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
Cooper & Co., Ltd., Victoria St., Newark, *Costume Manufacturers, F.*	Newark (Borough), May 7.	3. Keeping register of children and young persons employed, &c.	1	0 2 6	0 8 0
Nicholson & Sons, Ltd., Trent Ironworks, Newark, *Engineers, F.*	Newark (County), May 9.	Do. do.	1	0 5 0	0 12 0
Castle & Sons, Lombard St., Newark, *Coach Builders, W.*	Newark (Borough), May 7.	6. Keeping register of accidents and diseases, or keeping it open to inspection.	1	0 2 6	0 11 6
Abbott & Co., Ltd., Beacon Hill, Newark, *Boiler Makers, F.*	Do.	Do. do.	1	0 2 6	0 11 6
Dobson Bros., Queen's Road, Nottingham, *Lace Manufacturers, F.*	Nottingham (Borough), April 20.	7. Notifying accident	1*a*	—	0 9 0
Stephenson & Sons, Trent Bridge, Newark, *Engineers, F.*	Newark (County), May 9.	Do. do.	1	0 5 0	0 9 6
Lee & Sons, Moorgate, Retford, *Tanners, F.* ..	Retford (Borough), June 26.	Do. do.	1	0 6 0	0 14 0
Jesse Stennett, Market Place, Newark, *Newspaper Printer, F.*	Newark (Borough), November 22.	Do. do.	1	0 2 6	0 12 6
		B. Posting of Abstracts, Notices, &c.			
H. & M. Lewis, Canal St., Nottingham, *Packing Case Manufacturers, F.*	Nottingham (Borough), April 20.	1. Failure to affix abstracts and notices.	1	0 10 0	0 14 6
Radcliffe Co-operative Society, Radcliffe-on-Trent, *Bakers, W.*	Bingham (County), November 15.	Do. do.	1	0 9 3	0 10 9
		II.—CHILDREN.			
		K. Age, Fitness, &c., of Children.			
Nicholson & Sons, Ltd., Trent Ironworks, Newark, *Engineers, F.*	Newark (County), May 9.	3. Without certificate of fitness ..	1	0 5 0	0 12 0
Thomas Adams & Co., Ltd., Radford Boulevard, Nottingham, *Lace Manufacturers, F.*	Nottingham (Borough), November 30.	Do. do.	1	1 0 0	0 10 6
		L. Employment of Children at Illegal Times.			
*Coggan & Co., Calverton, *Hosiery Manufacturers, F.*	Nottingham (County), June 16.	1. Before or after legal hours ..	1	1 0 0	0 13 0
Thomas Adams & Co., Ltd., Sherwood Rise, Nottingham, *Lace Dressers, F.*	Nottingham (Borough), November 30.	Do. do.	1	1 0 0	0 11 6
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
H. & M. Lewis, Canal St., Nottingham, *Packing Case Manufacturers, F.*	Nottingham (Borough), April 20.	Employing young person under 16 without certificate of fitness.	2	0 10 0	1 9 0
Savage & Sons, Popham St., Nottingham, *Engineers, F.*	Do.	Do. do.	1	0 10 0	0 14 6
Lewis & Lewis, Canal St., Nottingham, *Cigar Manufacturers, F.*	Do.	Do. do.	3	0 15 0	2 3 6
Cooper & Co., Ltd., Victoria St., Newark, *Costume Manufacturers, F.*	Newark (Borough), May 7.	Do. do.	2	0 5 0	1 3 0
Abbott & Co., Ltd., Beacon Hill, Newark, *Boiler Makers, F.*	Do.	Do. do.	1	0 2 6	0 11 6
Nicholson & Sons, Ltd., Trent Ironworks, Newark, *Engineers, F.*	Newark (County), May 9.	Do. do.	3	0 15 0	1 16 0
Thomas Adams & Co., Ltd., Radford Boulevard, Nottingham, *Lace Manufacturers, F.*	Nottingham (Borough), November 30.	Do. do.	1	1 0 0	0 10 6

a.—Withdrawn on payment of costs.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XVII.—NOTTINGHAM DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	
		E. Employment of Young Persons at Illegal Times.			
*Coggan & Co., Calverton *Hosiery Manufacturers, F*	Nottingham (County), June 16.	1. Before or after legal hours ..	1	1 0 0	0 13 0
Thomas Adams & Co., Ltd., Sherwood Rise, Nottingham, *Lace Dressers, F.*	Nottingham (Borough), November 30.	Do. do.	2	2 0 0	1 1 0
Radcliffe Co-operative Society, Radcliffe-on-Trent, *Bakers, W.*	Bingham (County), November 15.	9. At night	1	0 6 3	0 13 9
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
Madame Cooke, Market Place, Newark, *Dressmaker, W.*	Newark (Borough), August 2.	4. Beyond legal hour on half-holiday.	2	0 5 0	1 8 0
Wolf Sagal, 11, Wheeler Gate, Nottingham, *Tailor, W.*	Nottingham (Borough), November 30.	Do. do.	2	1 1 0	1 1 0

XVIII.—DERBY DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards :—			
Haskard & Son, Curzon St., Derby, *Cycle Makers, F.*	Derby (Borough), August 15.	1. Notification of commencement of occupation.	1*a*	0 0 6	—
Plowright Bros., Shepley St., Chesterfield, *Engineers, F.*	Chesterfield (Borough), March 22.	3. Keeping register of children and young persons, &c.	1	0 5 0	0 7 0
S. J. Claye, Ltd., Long Eaton, *Waggon Builders, F.*	Long Eaton (County), August 7.	Do. do.	1	0 1 0	0 9 6
Fisher & Smith, Rutland Works, Bakewell, *Sawmillers, F.*	Bakewell (County), April 6.	7. Notifying accidents	1	0 10 0	0 9 6
G. S. Drabble, Matlock Bath, *Sawmiller, F.* ..	Matlock (County), May 30.	Do. do.	1	0 1 0	0 9 0
		B. Posting of Abstracts, Notices, &c.			
Ashbourne Brick, Tile, & Pipe Co., Ltd., Ashbourne, *Brick Manufacturers, F.*	Ashbourne (County), October 26.	1. Failure to affix abstracts and notices.	1	1 0 0	0 10 0
		D. Fencing; Dangerous Machinery, &c.			
Killamarsh Brick Co., Ltd., Killamarsh, Sheffield, *Brick Manufacturers, F.*	Eckington (County), April 2.	2. Penal Compensation in cases where death or injury has resulted from :— Failure to fence machinery.	1*b*	—	0 7 0
		II.—CHILDREN.			
		M. Occupation of Children.			
J. Wood & Bros., Ltd., Howard Town Mills, Glossop, *Cotton Manufacturers, F.*	Glossop (Borough), January 22.	2. Cleaning machinery in motion	1	0 5 0	0 10 6

a.—Costs remitted.
b.—Withdrawn on payment of costs, the firm having paid the injured person £30 and legal expenses.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XVIII.—DERBY DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS.		£ s. d.	£ s. d.
		Q. Fitness, &c.			
James Oldham, Market Place, Long Eaton, *Card Cutter, F.*	Long Eaton (County), April 3.	Employing young person under 16 without certificate of fitness.	1	0 2 6	0 12 6
S. J. Claye, Ltd., Long Eaton, *Waggon Builders, F.*	Long Eaton (County), August 7.	Do do.	2	0 2 0	1 1 0
		R. Employment of Young Persons at Illegal Times.			
Plowright Bros., Shepley St., Chesterfield, *Engineers, F.*	Chesterfield (Borough), March 22.	1. Before or after legal hours ..	2	0 10 0	1 1 0
*Jas. Fletcher, Bank St., Long Eaton, *Lace Manufacturer, F.*	Long Eaton (County), April 3.	Do. do.	1	0 10 0	0 12 6
Alfred Lowe, jr., Clifford St., Long Eaton, *Lace Manufacturer, F.*	Do.	Do. do.	1	0 10 0	0 13 6
Moult & Son, Osmaston Road, Derby, *Tailors, W.*	Derby (Borough), May 23.	Do do	1	0 5 0	0 7 6
Calladine, Swift & Co., West End Mills, Long Eaton, *Lace Manufacturers, F.*	Long Eaton (County), August 7.	Do. do.	1	0 1 0	0 11 6
*John Walton, Glossop, *Bleach and Dye Works Occupier, F.*	Glossop (Borough), August 13.	Do. do.	1	0 10 0	0 11 6
William F. Hill, Beard Mill, New Mills, *Cotton Spinner, F.*	New Mills (County), January 17.	6. At meal times	1	0 2 6	0 14 6
*John Walton, Glossop, *Bleach and Dye Works Occupier, F.*	Glossop (Borough), August 13.	Do. do.	1	0 10 0	0 11 6
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
John Topham, St. Peter St., Derby, *Upholsterer, W.*	Derby (Borough), June 2.	1. Before or after legal hours ..	2	0 10 0	1 1 0
*Selina Alman, 18, Wardwick, Derby, *Dressmaker, W.*	Derby (Borough), July 12.	Do. do.	3	0 7 6	1 13 0
		V.—DANGEROUS TRADES, &c.			
Jas. Robinson, Gerard St., Derby, *Aërated Water Manufacturer, F.*	Derby (Borough), July 12.	1. Failure to observe or affix Special Rules. Aërated Water Works:— Failure to affix Special Rules.	1	1 0 0	0 13 6

XIX.—LINCOLN DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
Lincoln Brick & Tile Co., Burton Road, Lincoln, *Brick Manufacturers, F.*	Lincoln (City), July 19.	3. Keeping register of children and young persons, &c.	1	0 5 0	0 11 0
Guy & Smith, Victoria St., Grimsby, *Dressmakers, W.*	Grimsby (Borough), July 12.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	4	0 4 0	3 2 0
		B. Posting of Abstracts, Notices, &c.			
Lincoln Brick & Tile Co., Burton Road, Lincoln, *Brick Manufacturers, F.*	Lincoln (City), July 19.	1. Failure to affix abstracts and notices.	1	0 5 0	0 11 0
G. H. Neale, Grantham, *Chair Manufacturer, F.*	Grantham (Borough), October 22.	Do. do.	1	1 0 0	0 5 0

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XIX.—LINCOLN DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		II.—CHILDREN.		£ s. d.	£ s. d.
		K. Age, Fitness, &c., of Children.			
Thomas Pickerden, Grimsby, *Sawmiller, F...*	Grimsby (Borough), November 1.	2. Without certificate of school attendance.	2	0 2 0	1 9 0
Lincoln Brick & Tile Co., Burton Road, Lincoln, *Brick Manufacturers, F.*	Lincoln (City), July 19	3. Without certificate of fitness ..	1	0 5 0	0 11 0
Thomas Pickerden, Grimsby, *Sawmiller, F* ..	Grimsby (Borough), November 1.	Do. do.	2	0 2 0	1 9 0
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
Lincoln Brick & Tile Co., Burton Road, Lincoln, *Brick Manufacturers, F.*	Lincoln (City), July 19	Employing young person under 16 without certificate of fitness.	1	0 5 0	0 11 0
G. H. Neale, Grantham, *Chair Manufacturer, F.*	Grantham (Borough), October 22.	Do. do.	1	1 0 0	0 6 0
		R. Employment of Young Persons at Illegal Times.			
Lincoln Leather Co., Lincoln, *Leather Dressers, F.*	Lincoln (City), July 2	1. Before or after legal hours ..	2	0 10 0	1 0 0
*Jane Brumwell, 35½, Silver St., Lincoln, *Ladies' Outfitter, W.*	Do.	4. Beyond legal hour on half-holiday.	2	0 10 0	1 0 0
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
*Jane Brumwell, 35½, Silver St., Lincoln, *Ladies' Outfitter, W.*	Lincoln (City), July 2	4. Beyond legal hour on half-holiday.	2	0 10 0	1 0 0

XX.—SOUTH WALES AND MONMOUTHSHIRE DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
Practicum Syndicate Co., Ltd., East Moors, Cardiff, *Chemical Manufacturers, F.*	Cardiff (Borough), May 14.	1. Notification of commencement of occupation.	1*a*	—	0 6 6
G. F. Lister, Teifi Woollen Mills, Llandyssul, *Woollen Manufacturer, F.*	Llanvihangel-ar-arth (County), May 30.	Do. do.	1	0 5 0	0 7 0
Kate Buckingham, 45, Broad St., Griffiths Town, *Dressmaker, W.*	Pontypool (County), November 8.	Do. do.	1	0 5 0	0 5 0
*Dynevor Engineering Co., Plasyfelin Works, Neath, *Founders and Engineers, F.*	Neath (Borough), February 12.	3. Keeping register of children and young persons, &c.	1	0 10 0	0 7 6
Richard Thomas & Co., Ltd., Cwmbwrla Works, Swansea, *Steel and Tinplate Manufacturers, F.*	Swansea (Borough), February 19.	Do. do.	1	1 11 6	0 8 6
D. William Jones, Talbot Square, Aberavon, *Letterpress Printer, F.*	Aberavon (Borough), March 8.	Do. do.	1	—	0 7 6
Clark & Crofts, 37, Bridge St., Newport, Mon., *Dressmakers, W.*	Newport (Borough), April 2.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	2	0 14 0	0 16 0
*Rolls & Tyler, 19, Charles St., Cardiff, *Dressmakers, W.*	Cardiff (Borough), May 14.	Do. do.	5	5 0 0	1 12 6

a.—Withdrawn on payment of costs.

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TABLE 86.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XX.—SOUTH WALES AND MONMOUTHSHIRE DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c.—*cont.*			
		Failure as regards:—			
J. & G. Clynoweth, 3, Craddock St., Swansea, *Tailors, W.*	Swansea (Borough), December 10.	5. Keeping list of outworkers, or keeping it open to inspection, or sending list to H.M. Inspector.	1	0 11 6	0 8 6
T. C. Palmer, Castle St., Swansea, *Tailor, W.*	Do.	Do. do.	1	0 11 6	0 8 6
J. Lewis & Co., High St., Swansea, *Tailors, W.*	Do.	Do. do.	1	0 11 6	0 8 6
*W. H. Stone, South Dock, Swansea, *Sawmiller, F.*	Swansea (Borough), March 20.	7. Notifying accident	1	0 1 0	0 8 6
		B. Posting of Abstracts, Notices, &c.			
Daniel James, Greenmeadow Woollen Mills, Velindre, Llandyssul, *Woollen Manufacturer, F.*	Newcastle Emlyn (County), March 30.	1. Failure to affix abstracts and notices.	1	0 2 6	0 7 6
Elizabeth Jones, Craigoefnpare, Owm Clydach, *Dressmaker, W.*	Pontardawe (County), April 20.	Do. do.	1	—	0 4 10
E. A. Coleman, Aberkenfig, Bridgend, *Dressmaker, W.*	Bridgend (County), April 28.	Do. do.	1	0 3 0	0 7 0
Joseph Shute, Beach St., Swansea, *Blacksmith, W.*	Swansea (Borough), September 22.	Do. do.	1	0 10 0	0 8 6
Edwin Treharne, South Parade, Maesteg, *Coach Builder, F.*	Bridgend (County), October 27.	Do. do.	1	0 13 0	0 7 0
E. Lovett & Co., Rock Street, Maesteg, *Tailors, W.*	Bridgend (County), December 1.	Do. do.	1	0 13 0	0 7 0
		D. Fencing; Dangerous Machinery, &c.			
*Tom Westacott, Crindan, Newport, Mon., *Joiner, F.*	Newport (Borough), April 27.	1. Failure to fence dangerous machinery.	1	2 2 0	0 8 0
Ebbw Vale Steel, Iron, & Coal Co., Ltd., Ebbw Vale, *Steel Manufacturers, F.*	Tredegar (County), July 31.	Do. do.	1	10 0 0	0 9 0
Thos. Davies, 17, Wyndham St., Bridgend, *Aërated Water Manufacturer, F.*	Bridgend (County), November 10.	Do. do.	1	0 7 0	0 3 0
Morriston Tinplate Co., Ltd., Morriston, *Tinplate Manufacturers, F.*	Swansea (County), May 23.	2. Penal Compensation in cases where death or injury has resulted from:— (*a.*) Failure to fence machinery	1	9 9 6	0 10 6
		II.—CHILDREN.			
		K. Age, Fitness, &c., of Children.			
Pontypool Works, Ltd., Pontypool, *Tinplate Manufacturers, F.*	Pontypool (County), June 9.	3. Without certificate of fitness ..	1	0 0 8	0 5 0
Henry James, Morfa Works, Llanelly, *Brick and Tile Manufacturer, F.*	Llanelly (County), October 31.	Do. do.	1	—	0 5 0
		L. Employment of Children at Illegal Times.			
Fairwood Tinplate Co., Ltd., Gowerton, *Tinplate Manufacturers, F.*	Swansea (County), August 1.	1. Before or after legal hours ..	1	1 0 0	0 7 0
Ely Tinplate Co., Llantrissant, *Tinplate Manufacturers, F.*	Cowbridge (County), July 17.	8. Otherwise than in morning and afternoon sets or on alternate days.	1	1 0 0	0 7 0
Rees Jones, 15, Broad St., Barry, *Letterpress Printer, F.*	Barry (County), July 23.	Do. do.	1	2 0 0	0 8 0

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XX.—SOUTH WALES AND MONMOUTHSHIRE DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		II.—CHILDREN—*cont.*		£ s. d.	£ s. d.
		L. Employment of Children at Illegal Times—*cont.*			
T. F. Andrews, 55, Penypeel Road, Cardiff, *Baker, W.*	Cardiff (Borough), March 23.	P. At night	1	2 0 0	0 0 6
John Player, Clydach, *Tinplate Manufacturer, F.*	Pontardawe (County), June 8.	Do. do.	1	1 0 0	0 7 0
Avondale Tinplate, Co., Ltd., Pontnewydd, *Tinplate Manufacturers, F.*	Pontypool (County), June 9.	Do. do.	1	0 15 0	0 5 0
Pontypool Works, Ltd., Pontypool, *Tinplate Manufacturers, F.*	Do.	Do. do.	1	0 6 8	0 5 0
Kidwelly Iron Sheet & Tinplate, Co., Ltd., Kidwelly, *Tinplate Manufacturers, F.*	Llanelly (County), July 4.	Do. do.	1	2 0 0	0 8 0
Benjamin Vaughan, Contractor, employed by Neath Steel Sheet & Galvanizing Co., Ltd., Neath, *Galvanized Sheet Manufacturers, F.*	Neath (Borough), July 13.	Do. do.	1*a*	1 0 0	0 18 0
M. D. Thomas, 80, Commercial St., Maesteg, *Baker, W.*	Bridgend (County), December 1.	Do. do.	1	—	0 5 6
		N. Parental Obligations.			
Elizabeth Reeves, 27, Brecon St., Cardiff, parent of child employed by T. F. Andrews, 55, Penypeel Road, Cardiff, *Baker, W.*	Cardiff (Borough), March 23.	1. Parent allowing child to be illegally employed.	1	—	0 1 0
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
***Dynevor Engineering Co.**, Plasyfelin Works, Neath, *Founders and Engineers, F.*	Neath (Borough), February 12.	Employing young person under 16 without certificate of fitness.	2	1 0 0	0 15 0
Richard Thomas & Co., Ltd., Cwmbwrla Works, Swansea, *Steel and Tinplate Manufacturers, F.*	Swansea (Borough), February 19.	Do. do.	1	1 11 6	0 8 6
D. William Jones, Talbot Square, Aberavon, *Letterpress Printer, F.*	Aberavon (Borough), March 8.	Do. do.	1	1 0 0	0 7 6
***Co-operative Furniture Manufacturing Co., Ltd.**, Westbury Street, Swansea, *Furniture Manufacturers, F.*	Swansea (Borough), April 3.	Do. do.	1	1 0 0	0 8 0
Morriston Tinplate Co., Ltd., Morriston, *Tinplate Manufacturers, F.*	Swansea (County), May 23.	Do. do.	1	1 9 6	0 10 6
David Evans, Pantolwen Woollen Factory, Llandyssul, *Woollen Manufacturer, F.*	Llanvihangel-ar-arth (County), May 30.	Do. do.	2	0 10 0	0 15 0
Glancynon Foundry Co., Glancynon, Aberdare, *Ironfounders and Engineers, F.*	Aberdare (County), June 26.	Do. do.	1	0 10 0	0 6 0
Black Lion Brewery Co., Ltd., Aberdare, *Aërated Water Manufacturers, F.*	Do.	Do do.	1	0 10 0	0 6 0
Henry Billings, Trafalgar Yard, Swansea, *Joiner, F.*	Swansea (Borough), June 28.	Do. do.	1	0 11 6	0 8 6
Benjamin Vaughan, Contractor, employed by Neath Steel Sheet & Galvanizing Co., Ltd, Neath, *Galvanized Sheet Manufacturers, F.*	Neath (Borough), July 13.	Do. do.	1*a*	1 0 0	0 18 0
R. B. Byass & Co., Mansel Works, Port Talbot, *Tinplate Manufacturers, F.*	Port Talbot (County), July 16.	Do. do.	1	0 10 0	0 8 0
Charles Jenkins & Son, Bridgend, *Carriage Builders, F.*	Bridgend (County), September 8.	Do. do.	1	—	0 3 6
Villiers Spelter Co., Ltd., Llansamlet, *Spelter Manufacturers, F.*	Swansea (County), September 22.	Do. do.	1	1 0 0	0 8 6
Wm. Williams, trading as **Llanelly Mineral Water Co.**, Inkerman St., Llanelly, *Mineral Water Manufacturer, F.*	Llanelly (County), October 10.	Do. do.	1	0 1 0	0 9 0

a.—This information was originally laid on July 9th against the firm, who summoned the "actual offender," under s. 87 (1878).

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XX.—SOUTH WALES AND MONMOUTHSHIRE DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS—*cont.*		£ s. d.	£ s. d.
		B. Employment of Young Persons at Illegal Times.			
Pontypool Works, Ltd., Pontypool, *Tinplate Manufacturers, F.*	Pontypool (County), June 9.	1. Before or after legal hours ..	1	0 6 8	0 5 0
Wyndham Thomas, Caldicot, *Tinplate Manufacturer, F.*	Chepstow (County), June 12.	Do. do.	1	0 2 6	0 8 6
Richard Thomas & Co., Ltd., Bury Works, Llanelly, *Tinplate Manufacturers, F.*	Llanelly (County), July 4.	Do. do.	2	2 0 0	0 18 0
Old Lodge Tinplate Co., Ltd., Llanelly, *Tinplate Manufacturers, F.*	Do.	Do. do.	3	3 0 0	1 4 0
Garnant Iron & Tinplate Co., Ltd., Garnant, *Tinplate Manufacturers, F.*	Llandilo (County), July 14.	Do. do.	1	0 10 0	0 10 0
A. M. Newton, 61, Newport Road, Cardiff, *Dressmaker, W.*	Cardiff (Borough), August 2.	Do. do.	1	1 0 0	0 6 6
Ynysmeudwy Tinplate Co., Ystalyfera, *Tinplate Manufacturers, F.*	Pontardawe (County), August 3.	Do. do.	1	1 0 0	0 7 0
Cape Copper Co., Ltd., Briton Ferry, *Copper Smelters, F.*	Neath (County), August 31.	Do. do.	1	1 0 0	0 7 0
William Henry Jones, 36, Adelaide St., Newport, Foreman, employed by C. H. Bailey, Tyne Engine and Ship Repairing Works, Newport, *Engineer and Ship Repairer, F.*	Newport (Borough), October 8.	Do. do.	2*a*	2 0 0	0 16 0
Welsh Tinplate & Metal Stamping Co., Ltd., Llanelly, *Tin Stampers and Enamellers, F.*	Llanelly (County), September 6.	4. Beyond legal hour on half-holiday.	2	0 10 0	0 18 0
Margaret Hopkins, Ammanford, *Dressmaker, W.*	Llandilo (County), May 19.	6. At meal times	1	0 5 0	0 9 0
E. Nicholl & Co., Ltd., Waterloo Bakery, Swansea, *Bakers, F.*	Swansea (Borough), April 26.	9. At night	1	1 11 6	0 8 6
Morriston Tinplate Co., Ltd., Morriston, *Tinplate Manufacturer, F.*	Swansea (County), May 23.	Do. do.	2	2 19 0	1 1 0
***Richard Thomas & Co., Ltd.**, Cwmbwrla, Swansea, *Steel and Tinplate Manufacturers, F.*	Swansea (Borough), June 7.	Do. do.	3	6 0 0	1 4
***Cwmfelin Steel & Tinplate Co., Ltd.**, Cwmfelin, Swansea, *Steel and Tinplate Manufacturers, F.*	Do.	Do. do.	1	2 0 0	0 8
John Player, Clydach, *Tinplate Manufacturer, F.*	Pontardawe (County), June 8.	Do. do.	2	2 0 0	0 14 0
***Park Tinplate Co., Ltd.**, Clydach, *Tinplate Manufacturers, F.*	Do.	Do do.	2	2 0 0	0 14 0
Redbrook Tinplate Co., Ltd., Pontnewydd, *Tinplate Manufacturers, F.*	Pontypool (County), June 9.	Do. do.	4	3 0 0	0 15 0
Clayton Tinplate Co., Ltd., Pontardulais, *Tinplate Manufacturers, F.*	Swansea (County), June 27.	Do do.	1*b*	—	—
Blaenavon Co., Ltd., Blaenavon, *Iron and Steel Manufacturers, F.*	Blaenavon (County), July 3.	Do. do.	1	0 15 0	0 5 0
Kidwelly Iron Sheet & Tinplate Co., Ltd., Kidwelly, *Tinplate Manufacturers, F.*	Llanelly (County), July 4.	Do. do.	1	2 0 0	0 8 0
Thomas Williams, Stepney St., Llanelly, *Milliner, W.*	Do.	Do. do.	1	0 9 0	0 11 0
Daniel Mansel, Stepney St., Llanelly, *Milliner, W.*	Do.	Do. do.	3	0 6 0	1 4 0
Richard Thomas & Co., Ltd., South Wales Works, Llanelly, *Steel Sheet Galvanizers, F.*	Do.	Do. do.	1	0 1 6	0 9 0
Aberavon Tinplate Co., Ltd., Borough Works, Aberavon, *Tinplate Manufacturers, F.*	Aberavon (Borough), July 5.	Do do.	5	1 7 6	1 13 6
Glynbendy Tinplate Co., Ltd., Brynamman, *Tinplate Manufacturers, F.*	Pontardawe (County), July 6.	Do. do.	1	1 0 0	0 7 0
Eagle Tinplate Co., Ltd., Neath, *Tinplate Manufacturers, F.*	Neath (Borough), July 9.	Do. do	2*c*	—	—
Richard Rosser, Son & Co., Cilfrew Works, Neath, *Tinplate Manufacturers, F.*	Neath (County), July 13.	Do. do.	3	1 0 0	1 1 0

a.—Information originally laid against the occupier, whose solicitor summoned the foreman as the actual offender, under s. 87 (1878).
b.—Withdrawn,
c.—Dismissed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see p. 570.)

XX.—SOUTH WALES AND MONMOUTHSHIRE DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		R. Employment of Young Persons at Illegal Times—*cont.*			
Resolven Tinplate Co., Ltd., Clyne Works, Neath, *Tinplate Manufacturers, F.*	Neath (County), July 13.	9. At night	1	1 0 0	0 7 6
Ferry Tinplate Co., Ltd., Briton Ferry, *Tinplate Manufacturers, F.*	Do.	Do. do.	2	1 0 0	0 14 6
Villiers Tinplate Co., Ltd., Victoria Works, Briton Ferry, *Tinplate Manufacturers, F.*	Do.	Do. do.	1	1 0 0	0 7 6
Gwynne & Co., Ltd., Gwalia Works, Briton Ferry, *Tinplate Manufacturers, F.*	Do.	Do. do	1	1 0 0	0 7 6
R. B. Byass & Co., Mansel Works, Port Talbot, *Tinplate Manufacturers, F.*	Port Talbot (County), July 16.	Do. do.	1	0 10 0	0 6 6
E. Davies & Sons, Ffrwdwyllt Works, Port Talbot, *Tinplate Manufacturers, F.*	Do.	Do. do.	2	1 0 0	0 12 0
Gyrnos Tinplate Co., Ltd., Ystalyfera, *Tinplate Manufacturers, F.*	Pontardawe (County), August 3.	Do. do.	1	2 0 0	0 7 6
L. E. Thomas, 45, Neath Road, Briton Ferry, *Milliner, W.*	Neath (County), August 31.	Do. do.	1	0 10 0	0 7 6
E. Iles, 46, Villiers St., Briton Ferry, *Dressmaker, W.*	Do.	Do. do.	2	1 0 0	0 14 6
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.—			
*W. Jones, 49, Mansel St., Swansea, *Dressmaker, W.*	Swansea (Borough), January 4.	1. Before or after legal hours ..	1	1 10 6	0 9 6
*David Jones, Dickinson & Co., Ltd., Steam Bakery, Dowlais, *Bakers, F.*	Merthyr Tydfil (County), March 5.	Do. do.	1	1 0 0	0 6 6
J. Morgan, Aberkenfig, Bridgend, *Dressmaker, W.*	Bridgend (County), April 28.	Do. do.	1	0 14 0	0 8 0
Ystalyfera Iron & Tinplate Co., Ystalyfera, *Tinplate Manufacturers, F.*	Pontardawe (County), August 3.	Do. do.	3	3 0 0	1 1 0
Hughes & Co., Cowell St., Llanelly, *Milliners, W.*	Llanelly (County), July 4.	3. On same day in factory or workshop and in a shop for a total period exceeding the time permitted for employment in factory or workshop.	1	0 2 6	0 8 0
*Rolls & Tyler, 19, Charles St., Cardiff, *Dressmakers, W.*	Cardiff (Borough), May 14.	4. Beyond legal hour on half-holiday.	1a	—	—
E. K. Luke, 12, Victoria Crescent, Swansea, *Dressmaker, W.*	Swansea (Borough), July 27.	Do. do.	1	1 0 0	0 8 6
Welsh Tinplate & Metal Stamping Co., Ltd., Llanelly, *Tin Stampers and Enamellers, F.*	Llanelly (County), September 6.	Do. do.	3	0 15 0	1 4 0
J. C. Rees, 198, High St., Swansea, *Milliner, W.*	Swansea (Borough), June 28.	9. At night	1	1 0 0	0 8 6
L. E. Thomas, 45, Neath Road, Briton Ferry, *Milliner, W.*	Neath (County), August 31.	Do. do.	2	1 0 0	0 14 0
		V.—DANGEROUS TRADES, &c.			
Catherine Edwards, Bottler, employed by H. W. & T. Hansard, Wassail Square, Swansea, *Aërated Water Manufacturers, F.*	Swansea (Borough), April 26.	1. Failure to observe or affix Special Rules. Aërated Water Works:— Failure to wear face guards, masks, veils, or gauntlets.	1	—	0 4 6
Susan Smith, Bottler, employed by H. W. & T. Hansard, Wassail Square, Swansea, *Aërated Water Manufacturers, F.*	Do.	Do. do.	1	—	0 4 6
John Maydwell, Wirer, employed by Basker & Co., Tudor Road, Cardiff, *Aërated Water Manufacturers, F.*	Cardiff (Borough), May 14.	Do. do.	1	0 5 0	0 6 6

a.—Withdrawn at suggestion of Stipendiary Magistrate, having regard to convictions under A. 4.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXI.—NORTH WALES DISTRICT.

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL.		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
John Owen Jones, London House, Colwyn Bay, *Dressmaker, W*	Colwyn Bay (County), December 8.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	4	1 0 0	1 6 0
		D. Fencing; Dangerous Machinery, &c.			
Arvon Brick & Tile Co., Ltd., Seiont Brick Works, Carnarvon, *Brick Manufacturers, F.*	Carnarvon (Borough), April 9.	1. Failure to fence dangerous machinery.	1	0 10 0	0 6 6
Ruabon Coal & Coke Co., Ltd., Hafod Works, Ruabon, *Brick and Terra Cotta Manufacturers, F.*	Bromfield (County), November 5.	2. Penal Compensation in cases where death or injury has resulted from :— Failure to fence machinery.	1	2 0 0	1 2 0
		III.—YOUNG PERSONS.			
		B. Employment of Young Persons at Illegal Times.			
John Owen Jones, London House, Colwyn Bay, *Dressmaker, W.*	Colwyn Bay (County), December 8.	9. At night	1	0 5 0	0 6 6

XXII.—LEEDS DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
Holmes & Moore, St. Mark's Square, Hull, *Cabinetmakers, F.*	Hull (City), March 13	3. Keeping register of children and young persons, &c.	1	0 10 0	0 5 0
Leeds Fire Clay Co., Ltd., Upper Wortley Road, Leeds, *Engineers, F.*	Leeds (City), July 31 ..	Do. do.	1	0 10 0	0 4 0
W. Bickers & Son, Commercial St., Leeds, *Dressmakers, W.*	Do.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	1	1 0 0	0 7 6
Denby & Spinks, 16, Albion St., Leeds, *Furniture Hangings Manufacturers, W.*	Leeds (City), August 22	Do. do.	1	1 0 0	0 7 6
Wm. Riley, School Close Mills, Leeds, *Clothier, F.*	Leeds (City), April 27..	5. Keeping list of outworkers, or keeping it open to inspection, or sending list to H.M. Inspector.	1	0 10 0	0 7 6
F. Sutcliffe & Co., 17, Park Lane, Leeds, *Clothiers, W.*	Leeds (City), May 28 ..	Do. do.	1a	—	—
J. & C. Boyle, St. Stephen's Road, Burmantofts, Leeds, *Brick Manufacturers, F.*	Leeds (City), June 8 ..	6. Keeping register of accidents and diseases, or keeping it open to inspection.	1	1 0 0	0 4 0
H. Rusholme, Skeldergate, York, *Letterpress Printer, F.*	York (City), November 29.	Do. do.	1	0 2 6	0 13 6
J. & C. Boyle, St. Stephen's Road, Burmantofts, Leeds, *Brick Manufacturers, F.*	Leeds (City), June 8 ..	7. Notifying accident	1	1 0 0	0 7 6
		B. Posting of Abstracts, Notices, &c.			
Harker & Co., Pothouse Yard, Hull, *Sack Repairers, W.*	Hull (City), March 13	1. Failure to affix abstracts and notices.	1	0 5 0	0 6 0
Selby Brick Co., Selby, *Brick Manufacturers, F.*	Barkston Ash, Lower (County), July 23.	Do. do.	1	0 1 0	0 7 6
Joseph Lister Lister, Burmantofts, Leeds, *Mortar Manufacturer, F.*	Leeds (City), November 15.	Do. do.	1a	—	—

a.—Dismissed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXII.—LEEDS DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		D. Fencing; Dangerous Machinery, &c.			
J. Bannister & Son, St. Ann's Mill, Kirkstall, Leeds, *Cloth Finishers and Dyers, F.*	Leeds (City), April 6 ..	1. Failure to fence dangerous machinery.	1	2 16 0	0 4 0
Joseph Lister Lister, Burmantofts, Leeds, *Mortar Manufacturer, F.*	Leeds (City), November 15.	Do. do.	1*a*	—	—
J. W. Shackleton, Vine St., Hunslet, Leeds, *Tinplate Stamper, F.*	Leeds (City), April 20..	2. Penal Compensation in cases where death or injury has resulted from :— Failure to fence machinery.	1*b*	0 17 6	0 2 6
Pullan & Mann, Eiland Road, Leeds, *Engineers, F.*	Leeds (City), October 31.	Do. do.	1	2 6 0	0 8 6
James Lupton, Water Lane, Leeds, *Cabinet-maker, F.*	Leeds (City), November 8.	Do. do.	1	5 0 0	0 7 6
		F. Means of Escape in case of Fire.			
Leeds Industrial Co-operative Society, 4108 Albion St., Leeds, *Clothing Manufacturers, F.*	Leeds (City), May 24..	3. Failure to provide moveable fire escapes.	1*c*	—	0 4 0
		K. Cleanliness, Ventilation, Overcrowding.			
Peck & Clough, Town St., Armley, *Boot Manufacturers, F.*	Leeds (City), November 27.	1. Failure to limewash factory, &c.	1	1 0 0	0 4 0
		L. Temperature.			
Harker & Co., Pothouse Yard, Hull, *Sack Repairers, W.*	Hull (City), March 13	Neglecting to maintain reasonable temperature.	1	0 5 0	0 10 0
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
Holmes & Moore, St. Mark's Square, Hull, *Cabinetmakers, F.*	Hull (City), March 13	Employing young person under 16 without certificate of fitness.	1	0 10 0	0 7 0
Wakefield Electrical Engineering Co., Southgate, Wakefield, *Electrical Engineers, F.*	Wakefield (City), September 21.	Do do.	1	0 5 0	0 8 0
W. Wilson & Sons, Whitehouse St., Hunslet, *Perambulator Manufacturers, F.*	Leeds (City), November 27.	Do. do.	2	2 0 0	0 15 0
		R. Employment of Young Persons at Illegal Times.			
J. H. Fenner & Co., Chapel Lane, Hull, *Belting Manufacturers, F.*	Hull (City), January 10	1. Before or after legal hours ..	1	0 7 6	0 9 0
Jas. Plaxton & Co., Whitefriargate, Hull, *Letterpress Printers, F.*	Do.	Do. do.	1	0 7 6	0 11 6
Wright Popplewell, 26, Westfield Road, Leeds, *Baker, W.*	Leeds (City), May 4 ..	Do. do.	1	0 10 0	0 7 6
Ann Myers, St. Andrew's House, Leeds, *Dressmaker, W.*	Do.	Do. do.	2	1 0 0	0 15 0
E. & J. Smith, 7, Woodsley Road, Leeds, *Bakers, W.*	Do.	Do. do.	1	0 10 0	0 7 6
Wolf Rosen, 22, Nile St., Hull, *Tailor, W* ..	Hull (City), June 26 ..	Do. do.	1	0 5 0	0 7 0
Abraham Goldman, Annison's Arch, Hull, *Tailor, W.*	Do.	Do. do.	1	0 5 0	0 7 0
W. Harrison & Co., Brook St., Hull, *Engineers, F.*	Do.	Do. do.	1	0 5 0	0 7 0

a.—Dismissed.
b.—Small penalty, as defendant had filed his petition in Bankruptcy after the first hearing of the case on April 6.
c.—Withdrawn on payment of costs, as fire escape had been obtained since May 17, the date of first hearing of this case.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXII.—LEEDS DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.* **R. Employment of Young Persons at Illegal Times**—*cont.*		£ s. d.	£ s. d.
A. Carabine & Co., Fourth Avenue, Goole, *Aërated Water Manufacturers, F.*	Goole (County), July 18	1. Before or after legal hours ..	2	0 10 6	1 1 0
The Executors of E. Short, First Avenue, Goole, *Aërated Water Manufacturers, F.*	Do.	Do. do.	1	0 10 6	0 10 6
Leeds Fire Clay Co., Ltd., Upper Wortley Road, Leeds, *Engineers, F.*	Leeds (City), July 31 ..	Do. do.	1	1 0 0	0 7 6
*R. W. Leak, 10, Westboro', Scarborough, *Baker, W.*	Scarborough (Borough), August 24.	Do. do.	1	—	0 9 0
Jacob Coss, Byron Street Mills, Leeds, *Tailor, W.*	Leeds (City), October 8	Do. do.	1	0 15 0	0 8 6
*Hanson & Oak, Theaker Lane, Armley, *Letterpress Printers, F.*	Leeds (City), November 27.	Do. do.	2	2 0 0	0 11 6
*Emily L. Clapham, 1, Kingston Square, Hull, *Dressmaker, W.*	Hull (City), May 29 ..	4. Beyond legal hour on half-holiday.	2a	—	—
Chas. Borman, 33, Woodcock St., Hull, *Baker, W.*	Hull (City), October 11	Do. do.	1	0 10 0	0 12 0
O. H. Hartley, Bruntcliffe Mill, Morley, *Woollen Manufacturer, F.*	Morley (Borough), July 30.	6. At meal times	1	0 1 0	0 12 6
Singleton Bros., Gelderd Road, Gildersome, *Dye Works Occupiers, F.*	Leeds (County), September 18.	Do. do.	1	0 10 0	0 13 6
*Louis Lightman, Dundas St., Leeds, *Cabinet-maker, F.*	Leeds (City), July 31 ..	10. On Sunday	1	1 0 0	0 7 6
		IV.—WOMEN. **W. Employment of Women at Illegal Times.**			
Simon Feldman, 7, Vincent St., Hull, *Tailor, W.*	Hull (City), March 13	1. Before or after legal hours ..	1	0 5 0	0 7 0
E. & J. Smith, 7, Woodsley Road, Leeds, *Bakers, W.*	Leeds (City), May 4 ..	Do. do.	1	0 10 0	0 7 6
Abraham Goldman, Annison's Arch, Hull, *Tailor, W.*	Hull (City), June 26 ..	Do. do.	1	0 5 0	0 7 0
*Hanson & Oak, Theaker Lane, Armley, *Letterpress Printers, F.*	Leeds (City), November 27.	Do. do.	1	0 10 0	0 7 6
*Bernel Anstey & Co., 1, Charles St., Hull, *Carpet Sewers, W.*	Hull (City), June 26 ..	4. Beyond legal hour on half-holiday.	2	2 0 0	0 18 0
Walter Bradley, Bruntcliffe Mill, Morley, *Woollen Manufacturer, F.*	Morley (Borough), July 30.	6. At meal times	2	0 5 0	1 7 0
W. H. Kingswell, Northgate, Wakefield, *Dressmaker, W.*	Wakefield (City), July 27.	9. At night	3	0 15 0	1 4 0
		V.—DANGEROUS TRADES, &c.			
Operatives employed by Camwal, Ltd., Starbeck, Harrogate, *Mineral Water Manufacturers, F.*:—					
Walter King, Bottler	Claro (County), June 27.	1. Failure to observe or affix Special Rules. Aërated Water Works:— Failure to wear face guards, masks, veils, or gauntlets.	1	0 1 0	0 6 6
Wm. White, Sighter	Do.	Do. do.	1	0 1 0	0 6 6
Wm. Blades, Bottler	Do.	Do. do.	1	0 1 0	0 6 6
Geo. Windsor, Bottler	Do.	Do. do.	1	0 1 0	0 6 6
H. Shackleton, Union Terrace, York, Operative, employed by R. A. Wright, Cumberland St., York, *Aërated Water Manufacturer, F.*	York (City), December 20.	Do. do.	1	0 1 0	0 6 6

a.—Dismissed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXIII.—SHEFFIELD DISTRICT.

Defendant (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL.		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
*F. W. Brooke & Co., Millgate, Rotherham, *Electroplaters and Bronzers, F.*	Rotherham (Borough), June 21.	3. Keeping register of children and young persons, &c.	1	0 10 0	0 8 6
Hartley & Co., Carlisle St., East, Sheffield, *Coke Sifters, F.*	Sheffield (City), November 7.	Do. do.	1	0 3 0	0 7 0
Killengrey & Co., Ltd., Frenchgate, Doncaster, *Confectionery Manufacturers, F.*	Doncaster (Borough), August 7.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	1	1 0 0	0 12 6
Hy. Eadon & Sons, Highbridge, Sheffield, *Steel Tilters and Forgers, F.*	Sheffield (City), December 24.	6. Keeping register of accidents and diseases, or keeping it open to inspection.	1	0 15 0	0 7 0
*Wheatley & Bates, Ltd., Napier St., Sheffield, *Aërated Water Manufacturers, F.*	Sheffield (City), July 17	7. Notifying accident	1	1 10 0	0 10 0
Schofield, Hartle & Co., Vicar Lane, Sheffield, *Comb Manufacturers, F.*	Do.	Do. do.	1	1 14 0	0 6 0
		B. Posting of Abstracts, Notices, &c.			
G. R. Jones & Co., Malinda St., Sheffield, *Steel Manufacturers, F.*	Sheffield (City), June 12.	1. Failure to affix abstracts and notices.	1	1 14 0	0 6 0
		D. Fencing; Dangerous Machinery, &c.			
Samuel E. Stevens, Hexthorpe, Doncaster, *Waggon Builder, F.*	Doncaster (County), September 29.	2. Penal Compensation in cases where death or injury has resulted from:— (*a.*) Failure to fence machinery.	1*a*	10 0 0	0 14 0
		E. Cleanliness, Ventilation, Overcrowding.			
J. & R. Corker, Ferham Works, Foundry St., Masborough, *Stove Grate Manufacturers, F.*	Rotherham (Borough), August 9.	1. Failure to limewash factory, &c.	1	0 6 6	0 8 6
		II.—CHILDREN.			
		K. Age, Fitness, &c., of Children.			
South Yorkshire Glass Bottle Co., Swinton, *Glass Bottle Manufacturers, F.*	Rotherham (County), March 19.	3. Without certificate of fitness ..	4	4 0 0	2 16 0
Hartley & Co., Carlisle St., East, Sheffield, *Coke Sifters, F.*	Sheffield (City), November 7.	Do. do.	1	0 1 0	0 9 0
		L. Employment of Children at Illegal Times.			
Wagstaff & Son, Snow Lane, Sheffield, *Saw Manufacturers, W.*	Sheffield (City), October 9.	8. Otherwise than in morning and afternoon sets or on alternate days.	1	1 0 0	0 11 0
Hy. Eadon & Sons, Highbridge, Sheffield, *Steel Tilters and Forgers, F.*	Sheffield (City), December 24.	9. At night	1	1 9 0	0 11 0
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
South Yorkshire Glass Bottle Co., Swinton, *Glass Bottle Manufacturers, F.*	Rotherham (County), March 19.	Employing young person under 16 without certificate of fitness.	1	1 0 0	0 14 0
A. H. Smith & Co., Don Brewery, Sheffield, *Beer Bottlers, F.*	Sheffield (City), April 12.	Do. do.	4	3 0 0	1 16 0
*F. W. Brooke & Co., Millgate, Rotherham, *Electroplaters and Bronzers, F.*	Rotherham (Borough), June 21.	Do. do	2	1 0 0	1 7 0

a.—Proceedings under the Workmen's Compensation Act were pending.

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TABLE 26.—Prosecutions in 1900 in Detail.—*continued.*

(*For General Notes* see p. 570.)

XXIII.—SHEFFIELD DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		Q. Fitness, &c.—*cont.*			
J. & R. Corker, Ferham Works, Foundry St., Masborough, *Stove Grate Manufacturers, F.*	Rotherham (Borough), August 9.	Employing young person under 16 without certificate of fitness.	2	0 13 4	1 7 0
Swift & Co., 4, Union Lane, Sheffield, *Scale Cutters, F.*	Sheffield (City), September 24.	Do. do.	1	1 5 0	0 9 0
W. G. & L. England, Summer Lane Barnsley, *Joiners and Sawmillers, F.*	Barnsley (Borough), October 8.	Do. do.	1	1 0 0	0 10 6
Hartley & Co., Carlisle St., East, Sheffield, *Coke Sifters, F.*	Sheffield (City), November 7.	Do. do	2	0 2 0	18 6
Edward Cave, Corporation St., Sheffield, *Sawyer, F.*	Sheffield (City), November 26.	Do. do.	1	1 5 0	0 9 0
		R. Employment of Young Persons at Illegal Times.			
Lydia Ann Cubley, 162, Grimesthorpe Road, Sheffield, *Dressmaker, W.*	Sheffield (City), July 17.	1. Before or after legal hours ..	5	0 5 0	2 5 0
Killengrey & Co., Ltd., Frenchgate, Doncaster, *Confectionery Manufacturers, F.*	Doncaster (Borough), August 7.	Do. do.	4	4 0 0	2 6 0
Edward Cave, Corporation St., Sheffield, *Sawyer, F.*	Sheffield (City), November 26.	Do. do.	2	1 10 0	1 1 0
Victoria Laundries Ltd., Howard St., Sheffield, *Laundry Occupiers, F.*	Sheffield (City), June 11.	5. Beyond legal number of hours in laundries.	4	2 0 0	2 0 0
Daniel Doncaster & Sons, Hoyle St., Sheffield, *Steel Manufacturers, F.*	Sheffield (City), June 12.	9. At night	1	1 0 0	0 9 0
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
Mary O'Connor, 30, Eastwood Lane, Rotherham, *Dressmaker, W.*	Rotherham (Borough), January 18.	1. Before or after legal hours ..	2	0 10 0	1 4 0
Wm. Staniland, 66, Pond St., Sheffield, *Baker, W.*	Sheffield (City), March 15.	Do. do.	1	0 10 0	0 10 0
Mary Ellen Nell, 242, St. Phillip's Road, Sheffield, *Dressmaker, W.*	Sheffield (City), June 25.	Do. do.	2	2 0 0	0 16 0
Victoria Laundries, Ltd., Howard St., Sheffield, *Laundry Occupiers, F.*	Sheffield (City), June 11.	8. Beyond legal period without interval for meals.	1	0 10 0	0 10 0
		VIII.—TENEMENT FACTORIES.			
Jno. Aislewood, Nursery St., Sheffield, *Owner of Tenement Factory.*	Sheffield (City), June 12.	3. Neglecting to provide or maintain instantaneous communication between rooms in which work is carried on and engine-room or boiler-house.	1	5 0 0	1 2 0

XXIV.—HUDDERSFIELD DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
Joseph Kaye & Sons, Wood St. Mills, Scissett, *Twine Manufacturers, F.*	Barnsley (County), November 26.	8. Keeping register of children and young persons, &c.	1	0 5 0	19 6
Dyson, Hall & Co., Greenside Mills, Dalton, Huddersfield, *Woollen Manufacturers, F.*	Huddersfield (Borough), September 17.	8. Keeping register of accidents and diseases, or keeping it open to inspection.	1a	—	—

a.—Dismissed. The injured man gave evidence contradicting a previous statement.

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TABLE 96.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p. 570.*)

XXIV.—HUDDERSFIELD DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c.—*cont.*			
		Failure as regards:—			
W. C. Holmes & Co., Whitestone Works, Huddersfield, *Gas Engineers, F.*	Huddersfield (Borough), October 29.	6. Keeping register of accidents and diseases, or keeping it open to inspection.	1	1 10 0	0 11 6
Syke Ing Mill Co., Ltd., Earlsheaton, Dewsbury, *Woollen Spinners, F.*	Dewsbury (County), December 31.	Do. do.	1a	—	—
Dyson, Hall & Co., Greenside Mills, Dalton, Huddersfield, *Woollen Manufacturers, F.*	Huddersfield (Borough), September 17.	7. Notifying accident	1b	—	—
W. C. Holmes & Co., Whitestone Works, Huddersfield, *Gas Engineers, F.*	Huddersfield (Borough), October 29.	Do. do.	1	1 0 0	1 11 6
		D. Fencing; Dangerous Machinery, &c.			
William Lockwood, Town End, Golcar, Huddersfield, *Joiner, F.*	Huddersfield (Borough), September 18	1. Failure to fence dangerous machinery.	1	0 10 0	0 7 6
M. Broadbent & Sons, Wellington Mills, Greenfield, *Cotton Spinners, F.*	Uppermill (County), January 24.	2. Penal Compensation in cases where death or injury has resulted from:— Failure to fence machinery.	1	5 0 0	0 15 0
		II.—CHILDREN.			
		K. Age, Fitness, &c., of Children.			
Alfred Crosland & Sons, Temple Mills, Lindley, Huddersfield, *Mungo and Shoddy Manufacturers, F.*	Huddersfield (Borough), May 28.	3. Without certificate of fitness ..	1	1 0 0	0 7 0
M. Ellis & Co., Ashton Clough Road, Liversedge, *Drysalters, F.*	Dewsbury (Borough), December 31.	Do. do.	1	0 10 0	0 11 6
		L. Employment of Children at Illegal Times.			
Alfred Crosland & Sons, Temple Mills, Lindley, Huddersfield, *Mungo and Shoddy Manufacturers, F.*	Huddersfield (Borough), May 28.	8. Otherwise than in morning and afternoon sets or on alternate days.	1	1 0 0	0 12 6
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
Harry Roebuck, Silver St. West, Moldgreen, Huddersfield, *Cabinetmaker, F.*	Huddersfield (Borough), September 17.	Employing young person under 16 without certificate of fitness.	2	1 0 0	1 3 0
White & Brearley, Town End, Golcar, Huddersfield, *Joiners, F.*	Huddersfield (County), September 18.	Do. do.	1	1 0 0	0 14 0
Joseph Kaye & Sons, Wood St. Mills, Sciscett, *Twine Manufacturers, F.*	Barnsley (County), November 28.	Do. do.	3	0 15 0	2 0 6
T. W. Addison, Smithies, Birstal, *Wheelwright, F.*	Dewsbury (County), December 31.	Do. do.	2	1 0 0	1 3 0
		R. Employment of Young Persons at Illegal Times.			
James Rhodes, Hey, Lees, *Cotton Spinner, F...*	Uppermill (County), June 27.	6. At meal times	2	—	0 6 0

a.—Dismissed.
b.—Dismissed. The injured man gave evidence contradicting a previous statement.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXIV.—HUDDERSFIELD DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
				£ s. d.	£ s. d.
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
James Rhodes, Hey, Lees, *Cotton Spinner, F...*	Uppermill (County) June 27.	6. At meal times	8	—	1 0 0
		X.—PARTICULARS SECTION.			
‡Nichol & Crowther, Ltd., St. Helens Mill, Almondbury, Huddersfield, *Worsted and Woollen Manufacturers, F.*	Huddersfield (Borough), May 7.	1. Failure to supply sufficient or correct particulars, or to supply them in legal manner.	3	0 15 0	1 14 6

XXV.—HALIFAX DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
John Crabtree & Sons, Salterhebble Mills, Halifax, *Cotton Spinners and Doublers, F.*	Halifax (Borough), July 3.	7. Notifying accident	1	0 10 0	0 8 6
		D. Fencing; Dangerous Machinery, &c.			
W. Feather & Co., Hope St., Halifax, *Machine Tool Makers, F.*	Halifax (Borough), October 23.	1. Failure to fence dangerous machinery.	1	0 4 6	0 5 6
Patchett Bros., Sedburgh Mills, Halifax, *Card Cloth Manufacturers, F.*	Do.	Do do.	1	1 0 0	0 5 6
		E. Cleanliness, Ventilation, Overcrowding.			
Old Lane Dye Works Co., Ltd., Old Lane, Halifax, *Dyers and Finishers, F.*	Halifax (Borough), September 4.	1. Failure to limewash factory, &c.	1	5 0 0	0 7 6
		II.—CHILDREN.			
		M. Occupation of Children.			
*John Crabtree & Sons, Salterhebble Mills, Halifax, *Cotton Spinners and Doublers, F.*	Halifax (Borough), July 3.	2. Cleaning machinery in motion.	1	0 10 0	0 5 6
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
Old Lane Dye Works Co., Ltd., Old Lane, Halifax, *Dyers and Finishers, F.*	Halifax (Borough), September 4.	Employing young person under 16 without certificate of fitness.	1	1 0 0	0 8 6
		R. Employment of Young Persons at Illegal Times.			
M. Marshall, 54 and 56, Briggate, Brighouse, *Dressmaker and Milliner, W.*	Brighouse (Borough), August 31.	1. Before or after legal hours ..	2	1 0 0	1 6 6

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXV.—HALIFAX DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		IV.—WOMEN.		£ s. d.	£ s. d.
		W. Employment of Women at Illegal Times.			
Herbert Siddal, Princess St. Chambers, Halifax, *Tailor, W.*	Halifax (Borough), June 26.	1. Before or after legal hours ..	1	0 5 0	0 8 6
Lydia Mitchell, 16, Briggate, Brighouse, *Dressmaker, W.*	Brighouse (Borough), September 7.	Do do.	2	1 0 0	1 3 0
		X.—PARTICULARS SECTION.			
‡ William Crabtree, & Co., Woodside Mills, Halifax, *Worsted Manufacturers, F.*	Halifax (Borough), October 26.	1. Failure to supply sufficient or correct particulars, or to supply them in legal manner.	3a	0 7 6	—
John Imbery, Fenton Road Works, Halifax, *Worsted Weaver, F.*	Halifax (Borough), June 26.	**XIV.—TRUCK ACTS.**	1	2 0 0	0 8 6

XXVI.—BRADFORD DISTRICT.

		I.—GENERAL.			
		B. Posting of Abstracts, Notices, &c.			
Bradford Provident Industrial Society, Ltd., 65, Sunbridge Road, Bradford, *Boot Manufacturers, F.*	Bradford (City), July 27.	1. Failure to affix abstracts and notices.	1	1 0 0	0 7 0
		D. Fencing; Dangerous Machinery, &c.			
George Harrison & Sons, Ltd., Forster Square, Bradford, *Lithographers, &c., F.*	Bradford (City), May 4	1. Failure to fence dangerous machinery.	1	0 5 0	0 12 0
* W. Grandage & Co., Ltd., Brownroyd Dye Works, Bradford, *Dye Works Occupiers, F.*	Bradford (City), June 8	Do. do.	1	3 0 0	0 8 0
R. Cundall & Sons, Ltd., Airedale Iron Works, Shipley, *Engineers and Ironfounders, F.*	Bradford (County), July 26.	Do. do.	1	1 0 0	0 7 6
Wilcock, Wood & Co., Ltd., Commercial St. Mills, Shipley, *Worsted Weavers, F.*	Bradford (County), October 4.	Do. do.	1	0 10 0	0 8 6
John Barrett, Eastburn Foundry, Keighley, *Engineer, F.*	Keighley (County), December 7.	Do. do.	1	3 0 0	0 7 6
William Haggas & Son, Albert Mills, Bradford, *Worsted Manufacturers, F.*	Bradford (City), December 21.	Do. do.	1	5 0 0	0 12 0
Boocock Bros., Well House Mill, Barnoldswick, *Cotton Weavers, F.*	Skipton (County), December 29.	Do. do.	1	2 0 0	0 18 0
		F. Means of Escape in case of Fire.			
W. Sellers & Co., Airedale Mills, Keighley, *Worsted Spinners, F.*	Keighley (Borough), November 15.	4. Allowing doors of factory, &c., to be illegally fastened.	1	0 10 0	0 14 0
		H. Cleanliness, Ventilation, Overcrowding.			
J. W. & F. N. Priestley, Victoria Mills, Liversedge, *Woollen Manufacturers, F.*	Dewsbury (County), April 6.	1. Failure to limewash factory, &c.	1	5 0 0	0 8 6
J. Slater, Salterforth, Yorkshire, *Cotton and Worsted Manufacturer, F.*	Skipton (County), April 21.	Do. do.	1	0 10 0	0 8 6
Bradford Provident Industrial Society, Ltd., 65, Sunbridge Road, Bradford, *Boot Manufacturers, F.*	Bradford (City), July 27.	Do. do.	1	2 0 0	0 18 0
Lister & Co., Ltd., Manningham Mills, Bradford, *Silk Manufacturers, F.*	Bradford (City), December 21.	Do. do.	1	1 0 0	0 8 0

a.—No costs allowed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXVI.—BRADFORD DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		II.—CHILDREN.		£ s. d.	£ s. d.
		K. Age, Fitness, &c., of Children.			
Robert Eagle, 59B, Well St., Bradford, *Lithographer, F.*	Bradford (City), January 30.	3. Without certificate of fitness ..	1	0 10 0	0 12 6
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
Robert Eagle, 59B, Well St., Bradford, *Lithographer, F.*	Bradford (City), January 30.	Employing young person under 16 without certificate of fitness.	2	1 0 0	1 4 6
G. Wilkinson & Sons, Ltd., Bradford Road Works, Keighley, *Engineers and Toolmakers, F.*	Keighley (Borough), June 7.	Do. do.	3	3 0 0	1 17 6
* E. Binns & Co., Ltd., Industry Mill, Thornton Road, Bradford, *Worsted Spinners, F.*	Bradford (City), July 5	Do. do.	1	2 0 0	0 12 0
W. Sellers & Co., Airedale Mills, Keighley, *Worsted Spinners, F.*	Keighley (Borough), November 15.	Do. do.	2	0 10 0	1 6 0
John Clegg, 168, Sunbridge Road, Bradford, *Patternmakers, F.*	Bradford (City), December 21.	Do. do.	1	0 2 6	0 12 0
J. Edmondson, Long Ing Shed, Barnoldswick, *Cotton Weaver, F.*	Skipton (County), December 29.	Do. do.	2	1 0 0	1 8 0
		R. Employment of Young Persons at Illegal Times.			
Lydia Laycock, 33, Scott St., Keighley, *Dressmaker, W.*	Keighley (Borough), September 13.	1. Before or after legal hours ...	1	0 5 0	0 8 0
John W. North, 55, Longside Lane, Bradford, *Cabinetmaker, W.*	Bradford (City), September 28.	Do. do.	1	0 2 6	0 8 0
Herbert H. Tetley, 33, Manchester Road, Bradford, *Letterpress Printer, F.*	Bradford (City), December 21.	Do. do.	2	0 10 0	1 6 0
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
Joseph Mercer, Cavendish St., Keighley, *Tailor, W.*	Keighley (Borough), June 7.	1. Before or after legal hours ..	1	0 5 0	0 12 6
Taylor & Holmes, 42, North St., Keighley, *Bakers, W.*	Do.	Do. do.	1	0 1 0	0 12 6
Lydia Laycock, 33, Scott St., Keighley, *Dressmaker, W.*	Keighley (Borough), September 13.	Do. do.	2	0 10 0	0 17 6
		V.—DANGEROUS TRADES, &c.			
J. Clough & Sons, Grove Mills, Ingrow, Keighley, *Worsted Spinners and Weavers, F.*	Keighley (Borough), September 27.	1. Failure to observe or affix Special Rules. Woolsorting Works:— Allowing sorting to be carried on over a sorting board, the funnel-shaped opening of which measured less than 10 inches across the top.	1	1 0 0	0 11 0
Do do.	Do.	Discharging dust from extraction shaft into the open air, and not into a properly constructed receptacle.	1	1 0 0	0 11 0
Jesse Cooke, Greengates, Keighley, *Woolcomber and Woolsorter, F.*	Keighley (Borough), December 6.	Failure to limewash walls and ceilings of sorting room.	1	0 10 0	0 6 6
		X.—PARTICULARS SECTION.			
†J. & A. Brown, Old Mill, Yeadon, *Woollen Manufacturers, F.*	Otley (County), November 2.	1. Failure to supply sufficient or correct particulars, or to supply them in legal manner.	3	1 10 0	2 2 6

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXVII.—NEWCASTLE DISTRICT.

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs (6)
		I.—GENERAL.		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
Alfred Alexander & Co., Blaydon-on-Tyne, *Glass Bottle Manufacturers, F.*	Gateshead (County), October 4.	3. Keeping register of children and young persons, &c.	1	0 10 0	0 7
Cooke Bros., 8, Silver St., Durham, *Letterpress Printers and Paper-bag Makers, F.*	Durham (City), November 26.	Do. do	1	0 5 0	0 7 0
H. Binns, Son & Co., Ltd., 38 and 39, Fawcett St., Sunderland, *Dressmakers and Milliners, W.*	Sunderland (Borough), September 18.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	3	0 7 6	1 4 6
Hardy, Robson & Co., Crawhall Saw Mills, City Road, Newcastle, *Sawyers, F.*	Newcastle (City), November 16.	6. Keeping register of accidents and diseases, or keeping it open to inspection.	1	0 10 0	0 9 6
Do. do.	Do.	7. Notifying accident	1	0 10 0	0 6 6
Davidson & Co., Hexham Iron Works, Hexham, *Engineers, F.*	Tindale Ward (County), December 4.	Do. do.	1	1 0 0	0 12 6
		B. Posting of Abstracts, Notices, &c.			
Henry Cooke & Co., Wycliffe Mill, Richmond, *Paper Manufacturers, F.*	Richmond (Borough), September 26.	1. Failure to affix abstracts and notices.	1	0 1 0	0 13 0
Graham & Bradley, Pudding Chare, Bigg Market, Newcastle, *Beer Bottlers, &c., F.*	Newcastle (City), November 30.	Do. do.	1a	—	—
		II.—CHILDREN.			
		E. Age, Fitness, &c., of Children.			
John Hume & Son, Ouseburn Mills, Foundry Lane, Newcastle, *Flour Millers, F.*	Newcastle (City), December 7.	3. Without certificate of fitness ..	1	—	0 8 0
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
Alfred Alexander & Co., Blaydon-on-Tyne, *Glass Bottle Manufacturers, F.*	Gateshead (County), October 4.	Employing young person under 16 without certificate of fitness, &c.	1	0 10 0	0 7 6
Davidson & Co., Hexham Iron Works, Hexham, *Engineers, F.*	Tindale Ward (County), December 4.	Do. do.	1	1 0 0	0 12 6
		R. Employment of Young Persons at Illegal Times.			
R. A. Cooke & Co., Custom House Quay, North Shields, *Sailmakers, F.*	North Shields, (Borough), May 1.	1. Before or after legal hours ..	1	0 2 6	0 10 0
Court Printing Co., Elswick Court, Northumberland St., Newcastle, *Printers, F.*	Newcastle (City), June 1	Do. do.	1	0 2 6	0 11 6
Snowball, Son & Co., Ltd., High St., Gateshead, *Dressmakers, W.*	Gateshead (Borough), July 30.	Do. do.	2	1 0 0	1 1 0
Thomas Blythe & Sons, Birtley, *Brick Manufacturers, F.*	Chester - le - Street, (County), September 26.	Do. do.	1	—	0 6 0
Alfred Alexander & Co., Blaydon-on-Tyne, *Glass Bottle Manufacturers, F.*	Gateshead (County), October 4.	Do. do.	2	1 0 0	1 6 0
Smith's Dock Co., Ltd., Templetown, South Shields. *Brassfounders, &c., F.*	South Shields, (Borough), December 3.	Do. do.	2	0 5 0	0 5 0
Cooke, Bros., 8, Silver St., Durham, *Letterpress Printers and Paper-bag Makers, F.*	Durham (City), November 26.	6. At meal times	2b	—	—

a.—Dismissed; appeal also dismissed.
b.—Dismissed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXVII.—NEWCASTLE DISTRICT—*continued.*

Defendant (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
				£ s. d.	£ s.
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
Frank Jacobs, 101, Westgate Road, Newcastle, *Tailor, W.*	Newcastle (City), May 11.	1. Before or after legal hours ..	3	0 7 6	1 10 6
Court Printing Co., Elswick Court, Northumberland St., Newcastle, *Printers, F.*	Newcastle (City), June 1	Do. do.	1	0 2 6	0 11 0
Todd, Birleson, & Co., Union Brick Works, Birtley, *Brick and Tile Manufacturers, F.*	Chester - le - Street (County), September 26.	Do. do.	6	—	2 1 0
E. Winship, Higham Place, Newcastle, *Dressmaker, W.*	Newcastle (City), February 23.	4. Beyond legal hour on half-holiday.	2	1 0 0	0 7 0
		V.—DANGEROUS TRADES, &c.			
Uriah Crutchley, 20, Bowes St., Stockton-on-Tees, operative glost placer, employed by Clarence Potteries Co., Ltd., Norton Road, Stockton, *Pottery Manufacturers, F.*	Stockton - on - Tees (County), December 19[1]	1. Failure to observe or affix special Rules. Earthenware and china works:— Failure to provide or wear overalls and head coverings.	1	0 2 6	0 7 6

XXVIII.—MANCHESTER DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
Warrington and District Mineral Water and Bottling Co., Ltd., Jockey St., Warrington, *Mineral Water Manufacturers, F.*	Warrington (Borough), April 30.	1. Notification of commencement of occupation.	1	0 1 0	0 12 0
Arpley Chemical Co., Arpley Meadows, Warrington, *Oil and Grease Manufacturers, F.*	Warrington (Borough), September 14.	Do. do.	1	—	0 13 0
S. H. Sekian, Ltd., Palatine Laundry, Rusholme, Manchester, *Laundry Occupiers, F.*	Manchester (City), November 7.	Do. do.	1	1 0 0	0 11 6
Savilles, Ltd., Chorlton Road, Old Trafford, *Beer Finings Manufacturers, F.*	Manchester (County), December 17.	Do. do.	1	1 0 0	0 10 0
George Hargreaves, Smedley Road, Colleyhurst, Manchester, *Letterpress Printer, F.*	Manchester (City), April 26.	3. Keeping register of children and young persons, &c.	1	—	0 6 6
Pemberton & Whittaker, Smedley Road, Colleyhurst, *Can Ring Makers, F.*	Do.	Do. do.	1	1 0 0	0 8 6
*Albert Payne, Bramall St., Warrington, *Joiner, F.*	Warrington (Borough), September 3.	Do. do.	1	0 10 0	0 8 0
Wagstaffe & Co., Thomas St., West Gorton, Manchester, *Cloth Finishers, F.*	Manchester (City), October 12.	Do. do.	1	1 0 0	0 11 6
S. B. Watts & Co., Ltd., 39, Oxford St., Manchester, *Wig and Costume Makers, W.*	Manchester (City), March 14.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	1	1 0 0	0 16 6
John Armstead, 77 Wilmslow Road, Rusholme, Manchester, *Milliner, W.*	Manchester (City), June 13.	Do. do.	1	1 0 0	0 11 6
Abraham Whyman, Mansell St., Cheetham, Manchester, *Tailor, W.*	Manchester (City), October 5.	Do. do.	1	0 10 0	0 11 6
Owen Gilbert, 25, Gravel Lane, Salford, *Leggings and Gaiters Manufacturer, F.*	Salford (Borough), December 19.	Do do.	4	0 10 0	0 16 6
John Henry Lees, Ltd., Bradshaw St., Moss Side, *Brewers, F.*	Manchester (County), December 17.	6. Keeping register of accidents and diseases, or keeping it open to inspection.	1	1 0 0	0 14 6

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXVIII.—MANCHESTER DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c.—*cont.*			
		Failure as regards:—			
F. Smith & Co., Ltd., St. Simon St., Salford, *Copper Wire Drawers, &c. F.*	Salford (Borough), February 14.	7. Notifying accident	1	0 5 0	0 8 6
J. W. Whitehead & Co., 81, Rusholme Road, Manchester, *Aërated Water Manufacturers, F*	Manchester (City), November 16.	Do. do.	1	2 0 0	0 14 0
Woodward & Ashworth, Cross St., Bradford, Manchester, *Ironfounders, F.*	Manchester (City), December 7.	Do. do.	1	1 0 0	0 11 0
Chloride Electrical Syndicate, Ltd., Clifton Junction, Manchester, *Electric Accumulator Manufacturers, F.*	Manchester (County), June 12.	8. Notifying cases of anthrax or of poisoning by lead, phosphorus, arsenic, or mercury.	1*a*	—	—
		B. Posting of Abstracts, Notices, &c.			
George Cardus, 111, George Leigh St., Manchester, *Tin Trunk Maker, W.*	Manchester (City), February 14.	1. Failure to affix abstracts and notices.	1	1 0 0	0 9 6
Ephraim Aukland, Jun., Arpley Road, Warrington, *Stone Mason, F.*	Warrington (Borough), September 14.	Do. do.	1	—	0 8 0
Morris Kaminsky, 12, Park St., Cheetham, Manchester, *Cabinetmaker, F.*	Manchester (City), November 7.	Do. do.	1	0 10 0	0 8 6
Wm. Gratrix, Allen St., Walkden, *Machinist, F.*	Manchester (County), November 21.	Do. do.	1	0 10 0	0 10 0
Robert Mellor, Poplar St., Failsworth, *Tanner, F.*	Manchester (County), December 4.	Do. do.	1	0 5 0	0 10 0
James Robinson & Co., Ltd., 111, Portland St., Manchester, *Makers up and Packers, F.*	Manchester (City), December 14.	Do. do.	1	1 0 0	0 8 6
		C. Obstruction or Personation of H.M. Inspectors.			
J. Holland, 12, Robert St., Cheetham, *Enamelled Letter Manufacturers, W.*	Manchester (City), June 13.	1. Obstruction	1*b*	—	—
		D. Fencing; Dangerous Machinery, &c.			
James Roper, 20, Barton Road, Patricroft, *Joiner, F.*	Eccles (Borough), January 22.	1. Failure to fence dangerous machinery.	1	1 0 0	0 6 6
Dunkerley Bros., Failsworth, *Cotton Spinners, F.*	Manchester (County), February 13.	Do. do.	1	0 10 0	0 10 0
S. Z. de Ferranti & Co., Ltd., Failsworth, *Engineers, F.*	Manchester (County), April 19.	Do. do.	1	0 10 0	0 12 6
John Smith, Culcheth Lane, Newton Heath, *Engineer, F.*	Manchester (City), April 25.	Do. do.	1	10 0 0	0 8 6
Broughton Copper Co., Ltd., Silk St., Adelphi, Salford, *Copper Mills Occupiers, F.*	Salford (Borough), May 23.	Do. do.	1	0 10 0	0 7 6
Joseph Taylor, Taylor's Road, Stretford, *Brickmaker, F.*	Manchester (County), August 30.	Do. do.	1	2 0 0	0 10 0
John Melbourne, Wilderspool Causeway, Warrington, *Engineer, F.*	Warrington (Borough), September 14.	Do. do.	1	—	0 8 0
Heenan & Froude, Monsall Road, Newton Heath, *Engineers, F.*	Manchester (City), December 7.	Do. do.	1	5 0 0	0 8 6
John Smith, Back Foundry St., Red Bank, Manchester, *Chairmaker, F.*	Do.	Do. do.	1	5 0 0	0 8 6
• Shaw, Jardine & Co., Ltd., Butler St., Manchester, *Cotton Spinners, F.*	Manchester (City), February 14.	2. Penal Compensation in cases where death or injury has resulted from:— Failure to fence machinery.	1	20 0 0	1 10 6
St. Helens Cable Co., Ltd., Bank Quay, Warrington, *Electric Cable Manufacturers, F.*	Warrington (Borough), September 7.	Do. do.	1	20 0 0	1 1 6
McConnel & Co., Ltd., Henry St., Ancoats, Manchester, *Cotton Spinners, F.*	Manchester (City), December 7.	Do. do.	1	0 5 0	0 5 0

a.—Dismissed.
b.—Dismissed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXVIII.—MANCHESTER DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		M. Cleanliness, Ventilation, Overcrowding.			
Salford Printing Co., 138, Chapel St., Salford, *Letterpress Printers, F.*	Salford (Borough), May 23.	1. Failure to limewash factory, &c.	1	1 0 0	0 6 0
		II.—CHILDREN.			
		Z. Employment of Children at Illegal Times.			
Bridgewater Spinning Co., Ltd., Cawdor St., Patricroft, *Cotton Spinners, F.*	Eccles (Borough), March 12.	5. At meal times	1	1 1 0	0 12 0
Jno. Knowles & Son, Newtown Mills, Pendlebury, *Cotton Spinners, F.*	Manchester (County), July 19.	Do. do.	1	0 13 4	0 12 0
George Poole, Chester Road, Stretford, *Sausage Manufacturer, F.*	Manchester (County), October 1.	8. Otherwise than in morning and afternoon sets or on alternate days.	1a	—	—
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
Blow & Clark, 45, Dutton St., Cheetham, Manchester, *Costume Makers, F.*	Manchester (City), February 21.	Employing young person under 16 without certificate of fitness.	1	0 10 0	0 14 0
John Bland & Son, 19, Shudehill, Manchester, *Tobacco Manufacturers, F.*	Do.	Do. do.	1	0 10 0	0 14 0
F. Quarmley & Co., John St., Gorton, *Joiners, F.*	Manchester (County), April 11.	Do. do.	1	0 10 0	0 12 0
Alexander Thompson (Manchester), Ltd., 80, Great Bridgewater St., Manchester, *Letterpress Printers, F.*	Manchester (City), April 12.	Do. do.	1	1 0 0	0 11 6
S. Z. de Ferranti & Co., Ltd., Failsworth, *Engineers, F.*	Manchester (County), April 19.	Do. do.	1	0 10 0	0 10 0
Robinson & Trevor, Culcheth Lane, Newton Heath, *Cotton and Linen Weavers, F.*	Manchester (City), April 25.	Do. do.	1	3 0 0	0 11 6
George Hargreaves, Smedley Road, Collyhurst, *Letterpress Printer, F.*	Do.	Do. do.	1	1 0 0	0 11 6
John Booth & Co., Walkden Mill, Walkden, *Cotton Doublers, F.*	Manchester (County), July 26.	Do. do.	2	1 0 0	1 8 0
R. Paulton & Co., 54, Mulberry St., Hulme, Manchester, *Handkerchief Hemmers, F.*	Manchester (City), August 31.	Do. do.	6	1 10 0	3 15 6
***Albert Payne**, Bramall St., Warrington, *Joiner, F.*	Warrington (Borough), September 3.	Do. do.	1	1 0 0	0 12 0
Wagstaffe & Co., Thomas St., West Gorton, Manchester, *Cloth Finishers, F.*	Manchester (City), October 12.	Do. do.	2	1 0 0	0 11 6
Crystal Water Co., Ltd., Hyde Road, West Gorton, *Aërated Water Manufacturers, F.*	Manchester (City), October 26.	Do. do.	2	2 0 0	1 3 0
D. Baker & Co., Percival St., Collyhurst St., Manchester, *Cabinetmakers, F.*	Manchester (City), November 7.	Do. do.	1	1 0 0	0 11 6
Morris Kaminsky, 12, Park St., Cheetham, Manchester, *Cabinetmaker, F.*	Do.	Do. do.	1	0 10 0	0 11 6
Jno. R. Fell, Hague St., London Road, Manchester, *Handkerchief Hemmer, F.*	Manchester (City), November 16.	Do. do	2	2 0 0	1 8 0
		R. Employment of Young Persons at Illegal Times.			
R. Marsden & Co., 436, Oldham Road, Manchester, *Tailors, W.*	Manchester (City), April 12.	1. Before or after legal hours ..	3	1 10 0	2 2 0
Jacob Bernstein, 43, Robert St., Cheetham, *Tailor, W.*	Manchester (City), April 25.	Do. do.	2	0 10 0	1 0 0
John Armstead, 77, Wilmslow Road, Rusholme, Manchester, *Milliner, W.*	Manchester (City), June 13.	Do. do.	3	3 0 0	1 14 6
Whitecross Co., Ltd., Milner St., Warrington, *Wire Manufacturers, F.*	Warrington (Borough), July 6.	Do. do.	3	0 15 0	1 16 0

a.—Dismissed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXVIII.—MANCHESTER DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		B. Employment of Young Persons at Illegal Times—*cont.*			
Jacob Rosenthall, 1, Cragie St., Cheetham, Manchester, *Cap Manufacturer, W.*	Manchester (City), August 3.	1. Before or after legal hours ..	1	1 0 0	0 14 0
Thos. Edge, Plymouth Avenue, Manchester, *Aërated Water Manufacturer, F.*	Manchester (City), August 17.	Do. do.	1	0 10 0	0 11 6
Camwal, Ltd., Stockport Road, Manchester, *Aërated Water Manufacturers, F.*	Do.	Do. do.	1	0 10 0	0 11 6
James Dyson, Stockport Road, Manchester, *Aërated Water Manufacturer, F.*	Do.	Do do.	2	1 0 0	1 3 0
Slack & Cox, Ltd., Hyde Road, West Gorton, Manchester, *Aërated Water Manufacturers, F.*	Do.	Do. do.	1	1 10 0	0 11 6
John Lang, Ducie St., Longsight, Manchester, *Aërated Water Manufacturer, F.*	Do.	Do. do	2	2 0 0	1 3 0
H. B. Andrew, Church Lane, Harpurhey, *Mantle Maker, W.*	Manchester (City), November 23.	Do. do.	1	1 0 0	0 11 6
Dunkerley Bros., Failsworth, *Cotton Spinners, F.*	Manchester (County), February 13.	6. At meal times	3	0 15 0	1 10 0
Bridgewater Spinning Co., Ltd., Cawdor St., Patricroft, *Cotton Spinners, F.*	Eccles (Borough), March 12.	Do. do.	5	2 17 0	3 7 0
G. Howarth & Co., Ltd., Droylsden Road, Newton Heath, *Cotton Manufacturers, F.*	Manchester (City), April 12.	Do. do.	3	0 10 0	1 6 9
Garlick & Dyson, Peel St., Newton Heath, *Cotton Spinners, F.*	Do.	Do. do.	1	0 10 0	0 9 4
Ivy Mill Co., Ltd., Failsworth, *Cotton Spinners, F.*	Manchester (County), July 19.	Do. do.	4	2 0 0	2 8 0
John Knowles & Son, Newtown Mills, Pendlebury, *Cotton Spinners, F.*	Do.	Do. do.	2	1 6 8	1 4 0
Gladstone Spinning Co., Ltd., Failsworth, *Cotton Spinners, F.*	Manchester (County), August 30.	Do. do.	1	0 10 0	0 14 6
*Lime Mill Co., Ltd., Victor Road, Hollinwood, *Cotton Spinners, F.*	Manchester (County), October 1.	Do. do.	2	0 2 0	0 15 6
Manchester Raising & Finishing Co., 9, Charles St., Sackville St., Manchester, *Flannelette Raisers, F.*	Manchester (City), December 7.	9. At night	1	2 0 0	0 13 0
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
Gartside & Co., Ltd., Mayo St., Ardwick, Manchester, *Cotton Weavers, F.*	Manchester (City), January 26.	1. Before or after legal hours ..	7a	—	—
Bridgewater Spinning Co., Ltd., Cawdor St., Patricroft, *Cotton Spinners, F.*	Eccles (Borough), March 12.	Do. do.	7	1 15 0	4 5 0
G. Howarth & Co., Ltd., Droylsden Road, Newton Heath, *Cotton Manufacturers, F.*	Manchester (City), April 12.	Do. do.	4	—	1 15 9
Garlick & Dyson, Peel St., Newton Heath, *Cotton Spinners, F.*	Do.	Do. do.	4	—	1 17 2
R. Haworth & Co., Ltd., Egerton Mills, Ordsall Lane, Salford, *Cotton Spinners, F.*	Salford (Borough), May 23.	Do. do.	2	1 0 0	0 15 0
Jacob Rosenthall, 1, Cragie St., Cheetham, Manchester, *Cap Manufacturer, W.*	Manchester (City), August 3.	Do. do.	1	1 0 0	0 14 0
*Lime Mill Co., Ltd., Victor Road, Hollinwood, *Cotton Spinners, F.*	Manchester (County), October 1.	Do. do.	9	0 9 0	3 7 6
Turton Manufacturing Co., Ltd., Upton St., London Road, Manchester, *Underclothing Manufacturers, F.*	Manchester (City), December 7.	Do. do.	4	4 0 0	2 12 0
St. Helens Cable Co., Ltd., Bank Quay, Warrington, *Electric Cable Manufacturers, F.*	Warrington (Borough), September 7.	10. On Sunday	8	8 0 0	4 4 9

a.—Dismissed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXVIII.—MANCHESTER DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		V.—DANGEROUS TRADES, &c.		£ s. d.	£ s. d.
†Patent Letter & Enamel Co., Slack Lane, Eccles, *Iron Plate and Copper Letter Makers, F.*	Eccles (Borough), December 10.	1. Failure to observe or affix Special Rules:— Enamelling of Iron Plate Works:— Failure to provide overalls and head coverings.	1	0 10 0	1 5 0
Do. do.	Do.	Failure to adopt perforated benches or tables supplied with fans, &c,	1	0 10 0	0 9 6
Do. do.	Do.	Re-employment of a person after absence from illness without a medical certificate of recovery.	1	0 10 0	1 6 6

XXIX.—OLDHAM DISTRICT.

		I.—GENERAL. **A. Keeping Registers, Sending Notices, &c.** Failure as regards:—			
*Joseph Wilson & Sons, Wilton St., Denton, *Felt Hat Manufacturers, F.*	Denton (County), April 20.	3. Keeping register of children and young persons, &c.	1	0 5 6	0 10 6
James Wagstaffe, Ltd., Collier St., Hurst, Ashton-under-Lyne, *Jam Makers, F.*	Ashton (County), May 23.	Do. do.	1	0 10 0	0 10 6
Lamb Mills Co., Ltd., Higginshaw Lane, Royton, *Cotton Spinners, F.*	Royton (County), June 6.	Do. do.	1	0 10 0	0 15 6
E. Moorhouse & Co., Cavendish St., Ashton, *Heald and Reed Manufacturers, F.*	Ashton (Borough), September 3.	Do. do.	1	—	0 8 0
James Bevan & Co., Ltd., Pit St., Denton, *Hat Manufacturers, F.*	Denton (County), September 7.	Do. do.	1	—	0 8 6
Richard Shiers & Bro., Shaw Road, Oldham, *Cotton Spinners, F.*	Oldham (Borough), December 12.	Do. do.	1	0 5 0	0 12 6
*J. Wild & Co., Ashton Road, Oldham, *Cotton Spinners, F.*	Oldham (Borough), October 11.	6. Keeping register of accidents and diseases, or keeping it open to inspection.	1	—	0 5 6
Grundy, Sons & Co., Victoria St., Middleton, *Stoneworkers, F*	Middleton (Borough), July 26.	7. Notifying accident		0 2 6	0 13 0
Joseph Firth & Son, Cavendish St., Ashton, *Wheelwrights, F*	Ashton (Borough), September 3.	Do. do.	1	0 5 6	0 13 0
*J. Wild & Co., Ashton Road, Oldham, *Cotton Spinners, F.*	Oldham (Borough), October 11.	Do. do,	1	0 5 0	0 8 0
Wm. Howard, Enville St., Ashton, *Wheelwright, W.*	Ashton (Borough), November 26.	Do. do.	1	0 2 6	0 13 0
William Ashworth, employed by Charles Ashworth, Birch St., Ashton-under-Lyne, *Cotton Doubler, F.*	Ashton (Borough), January 15.	11. Forging, &c., certificate, or making false entry in register or document.	1	1 0 0	0 14 0
		B. Posting of Abstracts, Notices, &c.			
James Kershaw, Dunkerley St., Oldham, *Smith, F.*	Oldham (Borough), October 11.	1. Failure to affix abstracts and notices.	1	0 2 6	0 8 0
		D. Fencing; Dangerous Machinery, &c.			
Tay Spinning Co., Ltd., Higginshaw, Oldham, *Cotton Spinners, F.*	Oldham (Borough), June 28.	1. Failure to fence dangerous machinery.	1	1 0 0	0 13 6
Dagger Hey Brick Co., Ltd., Shaw, *Brick Makers, F.*	Royton (County), August 15.	Do. do.	1	0 5 0	0 10 6
Cheshire Mills Co., Ltd., Ryecroft St., Ashton, *Cotton Manufacturers, F.*	Ashton (Borough), November 12.	Do. do.	1	0 10 0	0 11 6
John Robinson, Cavendish St., Ashton, *Joiner, F*	Do.	Do. do.	1	0 5 0	0 10 6

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXIX.—OLDHAM DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		B. Cleanliness, Ventilation, Overcrowding.			
John Rowland, Main Road, Oldham, *Cotton Spinner, F.*	Oldham (Borough), August 18.	1. Failure to limewash factory, &c	1	0 5 0	0 9 0
*Guide Bridge Spinning Co., Ltd., South St., Guide Bridge, *Cotton Spinners, F.*	Ashton (Borough), November 26.	Do. do.	1	0 5 6	0 12 6
		II.—CHILDREN.			
		K. Age, Fitness, &c., of Children.			
Cambridge Mill Co., Ltd., Featherstall Road, Oldham, *Cotton Spinners, F.*	Oldham (Borough), April 25.	3. Without certificate of fitness ..	2	1 0 0	1 5 0
		L. Employment of Children at Illegal Times.			
*Acorn Mill Co., Ltd., Lees, *Cotton Spinners, F.*	Ashton (County), April 4.	5. At meal times	1	0 2 6	0 10 6
King Spinning Co., Ltd., Royton, *Cotton Spinners, F.*	Royton (County), July 11.	Do. do.	2	0 5 0	1 0 0
		M. Occupation of Children.			
Equitable Spinning Co., Ltd., Huddersfield Road, Oldham, *Cotton Spinners, F.*	Oldham (Borough), January 20.	2. Cleaning machinery in motion	1	0 5 0	0 14 6
Prockter & Co., Vale Mill, Hollinwood, *Cotton Spinners, F.*	Oldham (Borough), May 5.	Do. do.	1	1 0 0	0 14 0
Rose Mill Spinning Co., Ltd., Chadderton, *Cotton Spinners, F.*	Chadderton (County), May 7.	Do do	1	0 10 0	0 16 6
Joseph Tate, Minder, employed by Chadderton Mill Co., Ltd., Chadderton, *Cotton Spinners, F.*	Do.	Do. do.	1	0 10 0	0 16 6
Albert Nield, Minder, employed by Kirkham & Mannock, Green St., Oldham, *Cotton Spinners, F.*	Oldham (Borough), December 12.	Do. do.	1	0 10 0	0 12 6
Arthur Butler, Minder, employed by Ryecroft Mills Co., Ltd., Ashton, *Cotton Spinners, F.*	Ashton (Borough), May 21.	3. Remaining between fixed and traversing parts of a machine.	1	0 10 0	0 18 6
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
*Joseph Wilson & Sons, Wilton St., Denton, *Felt Hat Manufacturers, F.*	Denton (County), April 20.	Employing young person under 16 without certificate of fitness.	1	1 0 0	0 10 6
James Wagstaffe Ltd., Collier St., Hurst, Ashton-under-Lyne, *Jam Makers, F.*	Ashton (County), May 23.	Do. do.	1	0 10 0	0 14 0
Lamb Mills Co., Ltd., Higginshaw Lane, Royton, *Cotton Spinners, F.*	Royton (County), June 6	Do. do.	2	1 0 0	1 11 0
Dagger Hey Brick Co., Ltd., Shaw, *Brick Makers, F.*	Royton (County), August 15.	Do. do.	1	0 2 6	0 15 6
Joseph Firth & Son, Cavendish St., Ashton, *Wheelwrights, F.*	Ashton (Borough), September 3.	Do. do.	1	0 5 6	0 10 6
E. Moorhouse & Co., Cavendish St., Ashton, *Heald and Reed Manufacturers, F.*	Do.	Do. do.	1	0 5 6	0 10 6
James Bevan & Co., Ltd., Pit St., Denton, *Hat Manufacturers, F.*	Denton (County), September 7.	Do. do.	1	0 5 6	0 10 6
Munslow & Co., Featherstall Road, Oldham, *Ironfounders, F.*	Oldham (Borough), October 11.	Do. do.	3	0 15 0	1 17 6
John Robinson, Cavendish St., Ashton, *Joiner, F.*	Ashton (Borough), November 12.	Do. do.	1	0 5 0	0 13 0
Richard Shiers & Bro., Shaw Road, Oldham, *Cotton Spinners, F.*	Oldham (Borough), December 12.	Do. do.	1	0 5 0	0 12 6

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXIX.—OLDHAM DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		B. Employment of Young Persons at Illegal Times.			
*Joseph Wilson & Sons, Wilton St., Denton, *Felt Hat Manufacturers, F.*	Denton (County), April 20.	1. Before or after legal hours ..	6	8 0 0	4 4 0
J. Allan Hanson, 57, Mumps, Oldham, *Letter-press Printer, F.*	Oldham (Borough), October 11.	Do. do.	2	0 10 0	1 5 0
*Edward Mayall & Massey, Ltd., Further Hey Mill, Lees, *Cotton Doublers, F.*	Ashton (County), November 28.	4. Beyond legal hour on Saturday	5	0 12 6	2 12 6
Cavendish Spinning Co., Ltd., Cavendish St., Ashton-under-Lyne, *Cotton Spinners, F.*	Ashton (Borough), January 15.	6. At meal times	4	0 4 0	2 2 0
*Samuel Hague & Co., Ltd., Newland Mill, North St., Oldham, *Cotton Spinners, F.*	Oldham (Borough), March 10.	Do. do.	5	5 0 0	2 0 0
William Firth, Mule-minder, employed by John Mayall, Ltd., Moesley, *Cotton Spinners, F.*	Moesley (Borough), March 15.	Do. do.	1	0 1 0	0 8 6
*Acorn Mill Co., Ltd., Lees, *Cotton Spinners, F.*	Ashton (County), April 4.	Do. do.	3	0 7 6	1 11 6
Thomas Wilde & Co., Caledonian Mill, Daniel St., Oldham, *Cotton Spinners, F.*	Oldham (Borough), May 17.	Do. do.	1	0 10 0	0 8 0
King Spinning Co., Ltd., Royton, *Cotton Spinners, F.*	Royton (County), July 11.	Do. do.	14	1 15 0	7 8 0
*Times Mill Co., Ltd., Middleton, *Cotton Spinners, F.*	Middleton (Borough), July 26.	Do. do.	7	0 17 6	3 10 0
*Sun Mill Co., Ltd., Chadderton, *Cotton Spinners, F.*	Chadderton (County), August 6.	Do. do.	4	4 0 0	2 2 0
*United Spinning Co., Ltd., Chadderton, *Cotton Spinners, F.*	Do.	Do. do.	11	1 7 6	5 15 6
Alliance Spinning Co., Ltd., Scott Field, Oldham, *Cotton Spinners, F.*	Oldham (Borough), August 18.	Do. do.	1	0 5 0	0 13 4
Stock Lane Spinning Co., Ltd., Stock Lane, Chadderton, *Cotton Spinners, F.*	Chadderton (County), December 3.	Do. do.	11	1 7 6	5 15 6
Milton Spinning Co., Ltd., Moesley, *Cotton Spinners, F.*	Moesley (Borough), March 15.	9. At night..	1	0 5 0	0 8 6
		S. Occupation of Young Persons.			
Joseph Wood, Muleminder, employed by Oldham Albion Spinning Co., Ltd., Acre St., Hollinwood, *Cotton Spinners, F.*	Chadderton (County), June 4.	3. Remaining between fixed and traversing parts of machine.	1	0 5 0	0 13 6
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
Lower Moor Spinning Co., Ltd., Lower Moor, Oldham, *Cotton Spinners, F.*	Oldham (Borough), November 14.	4. Beyond legal hour on half-holiday.	1	0 5 0	0 8 0
*Edward Mayall & Massey, Ltd., Further Hey Mill, Lees, *Cotton Doublers, F.*	Ashton (County), November 28.	Do. do.	3	3 2 6	1 1 0
Cavendish Spinning Co., Ltd., Cavendish St., Ashton-under-Lyne, *Cotton Spinners, F.*	Ashton (Borough), January 15.	6. At meal times	6	1 5 0	3 3 0
Mallalieu & Wrigley, Ltd., Carr Hill Mills, Moesley, *Cotton Spinners, F.*	Moesley (Borough), January 18.	Do. do.	8	0 8 0	2 12 0
*Samuel Hague & Co., Ltd., Newland Mill, North St., Oldham, *Cotton Spinners, F.*	Oldham (Borough), March 10.	Do. do.	5	5 0 0	2 0 0
*Acorn Mill Co., Ltd., Lees, *Cotton Spinners, F.*	Ashton (County), April 4.	Do. do.	7	1 15 0	3 13 6
Thomas Wilde & Co., Caledonian Mill, Daniel St., Oldham, *Cotton Spinners, F.*	Oldham (Borough), May 17.	Do. do.	7	3 10 0	2 16 0
Holyrood Mill Co., Ltd., Higginshaw, Oldham, *Cotton Spinners, F.*	Oldham (Borough), May 31.	Do. do.	16	2 0 0	4 11 6
King Spinning Co., Ltd., Royton, *Cotton Spinners, F.*	Royton (County), July 11.	Do. do.	14	1 15 0	7 8 0

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TABLE 36.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXIX.—OLDHAM DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		IV.—WOMEN—*cont.*		£ s. d.	£ s. d.
		W. Employment of Women at Illegal Times—*cont.*			
*Times Mill Co., Ltd., Middleton, *Cotton Spinners, F.*	Middleton (Borough), July 26.	6. At meal times	19	2 7 6	9 10 0
*Sun Mill Co., Ltd., Chadderton, *Cotton Spinners, F.*	Chadderton (County), August 6.	Do. do.	14	14 0 0	7 7 0
*United Spinning Co., Ltd., Chadderton, *Cotton Spinners, F.*	Do.	Do. do.	13	1 12 6	3 16 6
Alliance Spinning Co., Ltd., Scott Field, Oldham, *Cotton Spinners, F.*	Oldham (Borough), August 18.	Do. do.	5	1 5 0	3 6
Stock Lane Spinning Co., Ltd., Stock Lane, Chadderton, *Cotton Spinners, F.*	Chadderton (County), December 3.	Do. do.	14	1 15 0	7 7 0
B. Dyson & Sons, Ltd., Chadderton Road, Oldham, *Cotton Manufacturers, F.*	Oldham (Borough), December 20.	Do. do.	3	0 15 0	1 7 0
Milton Spinning Co., Ltd., Mossley, *Cotton Spinners, F.*	Mossley (Borough), March 15.	9. At night	3	0 15 0	1 5 6

XXX.—ROCHDALE DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
R. S. Lincoln, King St., Accrington, *Toy and Brush Manufacturer, F.*	Accrington (Borough), September 19.	3. Keeping register of children and young persons, &c.	1	1 0 0	0 12 6
Star Underclothing Co., Hampson St., Radcliffe, *Underclothing Manufacturers, F.*	Radcliffe (County), November 12.	Do. do.	1	0 5 0	0 10 6
*Wm. Rumney & Co., Ltd., Stubbins Works, Ramsbottom, *Bleachers, &c., F.*	Bury (County), December 6.	Do. do.	1	0 10 0	0 10 6
J. H. Haworth & Co., Warth Mills, Waterfoot, *Slipper Manufacturers, F.*	Rawtenstall (County), June 28.	6. Keeping register of accidents and diseases, or keeping it open to inspection.	1	1 0 0	0 17 6
		B. Posting of Abstracts, Notices, &c.			
Broadfield Direct Cop Dyeing Co., Broadfield, Heywood, *Dyers, F.*	Heywood (Borough), April 11.	1. Failure to affix abstracts and notices.	1	0 5 0	0 14 6
Joseph Oddie, Tottington Road, Elton, Bury, *Mineral Water Manufacturer, F.*	Bury (Borough), June 20.	Do. do.	1	0 16 0	0 6 6
E. Riley, James St., Radcliffe, *Mineral Water Manufacturer, F.*	Radcliffe (County), June 25.	Do. do.	1	0 1 0	0 10 6
John Duckworth, Ltd., Sion Road, Radcliffe, *Chemical Manufacturers, F.*	Do.	Do. do.	1	0 1 6	0 10 6
Vine Grove Spinning Co., Haslingden, *Cotton Manufacturers, F.*	Haslingden (Borough), August 6.	Do. do.	1	0 5 0	0 16 6
George Howe, Union Square, Bury, *Leather Manufacturer, F.*	Bury (Borough), August 17.	Do. do.	1	0 10 0	0 7 6
Blue Mill Bleaching & Dyeing Co., Ltd., Rock St., Radcliffe, *Bleachers and Dyers, F.*	Radcliffe (County), August 20.	Do. do.	1	0 5 0	0 10 6
Samuel Smethurst & Sons, Woolfolds, Bury, *Bleachers and Dyers, F.*	Bury (Borough), September 18.	Do. do.	1	0 5 0	0 7 6
		D. Fencing; Dangerous Machinery, &c.			
John Duckworth, Ltd., Sion Road, Radcliffe, *Chemical Manufacturers, F.*	Radcliffe (County), June 25.	1. Failure to fence dangerous machinery.	1	1 0 6	0 10 6
Vine Grove Spinning Co., Haslingden, *Cotton Manufacturers, F.*	Haslingden (Borough), August 6.	Do. do.	1	0 10 0	0 16 6
Samuel Smethurst & Sons, Woolfolds, Bury, *Bleachers and Dyers, F.*	Bury (Borough), September 18.	Do. do.	1	0 10 0	0 13 6

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXX.—ROCHDALE DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		D. Fencing; Dangerous Machinery, &c.—*cont.*			
Robert Peers, Brooksmouth Mill, Bury, *Cotton Manufacturer & Dyer, F.*	Bury (Borough), April 26.	2. Penal Compensation in cases where death or injury has resulted from:— Failure to fence machinery.	1	10 0 0	0 15 6
Marsden, Cotton & Co., Lane Side, Haslingden, *Cotton Manufacturers. F.*	Haslingden (County), July 9.	Do.[a] do.	1a	0 1 0	0 14 0
Schofield & Jones, Duke St., Rochdale, *Sawmillers, F.*	Rochdale (Borough), October 10.	Do. do.	1	5 0 0	0 18 0
		K. Cleanliness, Ventilation, Overcrowding.			
C. Vickerman & Sons, Union Square, Bury, *Letterpress Printers, F.*	Bury (Borough), August 17.	1. Failure to limewash factory, &c.	1	0 5 0	0 7 6
W. Walker, Fleet St., Bury, *Tobacco Manufacturer, F.*	Do.	Do do.	1	0 5 0	0 7 6
Blomeley & Son, Union Square, Bury, *Letterpress Printers, F.*	Do.	Do. do.	1	0 10 0	0 7 6
T. Crompton & Co., Fleet St., Bury, *Letterpress Printers, F.*	Do.	Do. do.	1	10 0 0	0 7 6
J. C. Hamer, Ltd., Within's Mill, Within's Lane, Radcliffe, *Cotton Manufacturers, F.*	Radcliffe (County), September 3.	Do. do.	1	1 0 0	0 12 6
Jordan Rostron, Hardsough Mill, Edenfield, Bury, *Woollen & Felt Manufacturer, F.*	Bury (County), October 11.	Do. do.	1	5 0 0	0 18 6
		II.—CHILDREN.			
		K. Age, Fitness, &c., of Children.			
George Howe, Union Square, Bury, *Leather Manufacturer, F.*	Bury (Borough), August 17.	3. Without certificate of fitness ..	1	0 10 0	0 11 6
R. S. Lincoln, King St., Accrington, *Toy and Brush Manufacturer, F.*	Accrington (Borough), September 19.	Do. do.	1	1 0 0	0 13 0
***Wm. Rumney & Co., Ltd.**, Stubbins Works, Ramsbottom, *Bleachers, &c., F.*	Bury (County), December 6.	Do. do.	1	0 10 0	0 16 6
		L. Employment of Children at Illegal Times.			
Daniel Hamer, Buckley Wells, Bury, *Rope and Twine Manufacturer, F.*	Bury (Borough), June 20.	1. Before or after legal hours ..	1	0 10 0	0 11 6
Mutual Spinning Co., Ltd., Heywood, *Cotton Spinners, F.*	Heywood (Borough), April 11.	5. At meal times	1	0 5 0	1 0 6
***J. S. Slater & Co., Ltd.**, Syke Side Mills, Haslingden, *Cotton Manufacturers, F.*	Haslingden (County), September 17.	Do. do.	1	1 0 0	0 2 6
***Helmshore Manufacturing Co., Ltd.**, Helmshore, Haslingden, *Cotton Manufacturers, F.*	Haslingden (County), December 12.	Do. do.	5	5 0 0	2 1 0
R. S. Lincoln, King St., Accrington, *Toy and Brush Manufacturer, F.*	Accrington (Borough), September 19.	8. Otherwise than in morning and afternoon sets or on alternate days.	2	—	1 4 0
Newhey Spinning Co., Ltd., Newhey, *Cotton Spinners, F.*	Rochdale (County), September 26.	9. At night	1	0 5 0	0 13 0

a.—Nominal penalty. Unprotected shuttle flew, striking out a woman's eye. The firm agreed to pay £115 compensation with all expenses. It was also shown that a firm of guard makers had been requested by Defendants to repair defective guards some ten or twelve days before accident occurred.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXX.—ROCHDALE DISTRICT—*continued.*

Defendant (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		II.—CHILDREN—*cont.*		£ s. d.	£ s. d.
		M. Occupation of Children.			
Mutual Spinning Co., Ltd., Heywood, *Cotton Spinners, F.*	Heywood (Borough), April 11.	3. Remaining between fixed and traversing parts of machine.	1	1 0 0	0 14 0
		N. Parental Obligations.			
Thomas Burrows, 56, Seymour St., Radcliffe, parent of child employed by J. H. Blakey, Phœnix Works, Radcliffe, *Smallwares Manufacturer, F.*	Radcliffe (County), June 25.	1. Parent allowing child to be illegally employed.	1	—	0 5 0
		III.—YOUNG PERSONS			
		Q. Fitness, &c.			
Joseph Oddie, Tottington Road, Elton, Bury, *Mineral Water Manufacturer, F.*	Bury (Borough), June 20.	Employing young person under 16 without certificate of fitness.	1	0 5 0	0 11 6
Daniel Hamer, Buckley Wells, Bury, *Rope and Twine Manufacturer, F.*	Do.	Do. do.	1	0 10 0	0 7 6
Peel Mill Manufacturing Co., Peel Mill, Zion St., Radcliffe, *Cotton Manufacturers, F.*	Radcliffe (County), August 20.	Do. do.	1	0 5 0	0 17 6
Star Underclothing Co., Hampson St., Radcliffe, *Underclothing Manufacturers, F.*	Radcliffe (County), November 12.	Do. do.	3	0 15 0	2 9 6
*Wm. Rumney & Co., Ltd., Stubbins Works, Ramsbottom, *Bleachers, &c., F.*	Bury (County), December 6.	Do. do.	1	0 10 0	0 16 6
Thomas Disley, Waterburn Mills, Stacksteads, Bacup, *Woollen Manufacturer, F.*	Bacup (Borough), December 19.	Do. do.	1	0 10 0	0 17 6
		R. Employment of Young Persons at Illegal Times.			
E. J. Riley & Co., Ltd., Dale St., Accrington, *Billiard Table Manufacturers and Wood Workers, F.*	Accrington (Borough), May 30.	1. Before or after legal hours ..	2	2 0 0	1 10 0
Daniel Hamer, Buckley Wells, Bury, *Rope and Twine Manufacturer, F.*	Bury (Borough), June 20.	Do. do.	3	1 10 0	1 13 6
†Wm. Rumney & Co., Ltd., Stubbins Works, Ramsbottom, *Calico Printers, &c., F.*	Bury (County), June 21	Do. do.	2	2 0 0	1 11 0
James Duckworth, Bury Ground, Bury, *Hat Manufacturer, F.*	Bury (Borough), September 18.	Do. do.	4	0 10 0	1 14 6
Joseph Webb & Co., Irwell Forge, Bury, *Iron Mill Occupiers, F.*	Do.	Do. do.	1	0 10 0	0 11 6
S. Lomax, Smyrna Works, Black Lane, Radcliffe, *Cotton Cloth Finisher, F.*	Radcliffe (County), October 8.	Do. do.	11	1 0 0	3 0 6
Sowerbutts & Watson, Cotton St., Accrington, *Engineers, F.*	Accrington (Borough), October 17.	Do. do.	1	—	0 13 6
Radcliffe Spinning Co., Ltd., New Road, Radcliffe, *Cotton Spinners, F.*	Radcliffe (County), December 17.	4. Beyond legal hour on half-holiday.	1	—	0 12 0
Mutual Spinning Co., Ltd., Heywood, *Cotton Spinners, F.*	Heywood (Borough), April 11.	6. At meal times	1	0 5 0	0 15 6
Henry Rostron & Sons, Ramsbottom, *Cotton Manufacturers, F.*	Bury (County), August 23.	Do. do.	5	—	1 5 0
*J. S. Slater & Co., Ltd., Syke Side Mills, Haslingden, *Cotton Manufacturers, F.*	Haslingden (County), September 17.	Do. do.	7	7 0 0	2 1 0
J. H. Openshaw, Albion Mills, Elton, Bury, *Cotton Manufacturer, F.*	Bury (Borough), December 6.	Do. do.	2	0 10 0	1 4 0
*Helmshore Manufacturing Co., Ltd., Helmshore, Haslingden, *Cotton Manufacturers, F.*	Haslingden (County), December 12.	Do. do.	7	7 0 0	2 17 5

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXX.—ROCHDALE DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		E. Employment of Young Persons at Illegal Times—*cont.*			
*John Warburton, Waterside Mill, Haslingden, *Cotton Manufacturer, F.*	Haslingden (County), December 12.	6. At meal times	1	0 10 0	1 0 0
†Wm. Rumney & Co., Ltd., Stubbins Works, Ramsbottom, *Calico Printers, &c. F.*	Bury (County), June 21.	8. Beyond legal period without interval for meals.	2	2 0 0	1 1 0
Blue Mill Bleaching & Dyeing Co., Ltd., Rock St., Radcliffe, *Bleachers and Dyers, F.*	Radcliffe (County), August 20.	Do. do.	1	0 5 0	0 17 6
Newhey Spinning Co., Ltd., Newhey, *Cotton Spinners, F.*	Rochdale (County), September 28.	9 At night	1	0 5 0	0 13 0
Bolderstone Spinning Co., Ltd., Buersil, Rochdale, *Cotton Manufacturers, F.*	Rochdale (Borough), December 14.	Do. do.	2	4 4 0	1 5 0
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
E. J. Riley & Co., Ltd., Dale St., Accrington, *Billiard Table Manufacturers and Wood Workers, F.*	Accrington (Borough), May 30.	1. Before or after legal hours ..	1	1 0 0	0 16 0
†Wm. Rumney & Co., Ltd., Stubbins Works, Ramsbottom, *Calico Printers, &c. F.*	Bury (County), June 21.	Do. do.	2	2 0 0	1 11 0
S. Lomax, Smyrna Works, Black Lane, Radcliffe, *Cotton Cloth Finisher, F.*	Radcliffe (County), October 8.	Do. do.	2	—	0 10 0
Radcliffe Spinning Co., Ltd., New Road, Radcliffe, *Cotton Spinners, F.*	Radcliffe (County), December 17.	4. Beyond legal hour on half-holiday.	1	0 2 6	0 16 6
Anderton & Halstead, Albert Mills, Haslingden, *Cotton Manufacturers, F.*	Haslingden (Borough), March 19.	6. At meal times	2	0 5 0	1 8 0
Henry Rostron & Sons, Ramsbottom, *Cotton Manufacturers, F.*	Bury (County), August 23.	Do. do.	5	0 1 0	1 12 6
*J. S. Slater & Co., Ltd., Syke Side Mills, Haslingden, *Cotton Manufacturers, F.*	Haslingden (County), September 17.	Do. do.	31	31 0 0	2 16 0
J. H. Openshaw, Albion Mills, Elton, Bury, *Cotton Manufacturer, F.*	Bury (Borough), December 6.	Do. do.	3	0 15 0	1 15 6
*Helmshore Manufacturing Co., Ltd., Helmshore, Haslingden, *Cotton Manufacturers, F.*	Haslingden (County), December 12.	Do do.	12	12 0 0	4 18 7
Nicholas Tomlinson & Sons, Ltd., Plantation Mill, Helmshore, *Cotton Manufacturers, F.*	Do.	Do. do.	1	1 0 0	0 16 6
*Hutch Bank Manufacturing Co., Ltd., Hutch Bank, Haslingden, *Cotton Manufacturers, F.*	Do.	Do. do.	3	1 10 0	2 8 0
James Lambert, Haslingden, *Cotton Manufacturer, F.*	Do.	Do. do.	4	3 0 0	3 6 0
*John Warburton, Waterside Mill, Haslingden, *Cotton Manufacturer, F.*	Do.	Do. do	2	1 0 0	2 0 0
†Wm. Rumney & Co., Ltd., Stubbins Works, Ramsbottom, *Calico Printers, &c., F.*	Bury (County), June 21	8. Beyond legal period without interval for meals.	2	2 0 0	1 1 0
Newhey Spinning Co., Ltd., Newhey, *Cotton Spinners, F.*	Rochdale (County), September 28.	9. At night	4	1 0 0	2 12 0
		V.—DANGEROUS TRADES, &c.			
Tattersall & Barlow, South Cross St., Bury, *Brassfounders and Finishers, F.*	Bury (Borough), June 20	1. Failure to observe or affix Special Rules. Brass, &c. works :— Failure to limewash.	1	5 0 0	0 6 6
Chas. Walmsley, Ltd., Elton, Bury, *Brassfounders and Engineers, F.*	Do.	Do. do.	1	5 0 0	0 6 6
		X.—PARTICULARS SECTION.			
‡J. H. Birtwistle & Co., Ltd., Grane Road, Haslingden, *Cotton Manufacturers, F.*	Haslingden (County), April 30.	1. Failure to supply sufficient or correct particulars, or to supply them in legal manner.	2	0 10 0	1 7 0
‡Thomas Haworth, Warth Mill, Waterfoot, *Cotton Manufacturer, F.*	Rawtenstall (Borough), July 26.	Do. do.	3	1 10 0	3 6 6

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXI.—BOLTON DISTRICT.

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
				£ s. d.	£ s. d.
		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
*Blakemore & Co., Ltd., Atherton, *Boltmakers, F.*	Leigh (County), October 22.	7. Notifying accident	1	1 0 0	0 16 6
		E. Cleanliness, Ventilation, Overcrowding.			
*Wm. Woods & Son, Trencherfield Mills, Wigan, *Cotton Manufacturers, F.*	Wigan (Borough), May 17.	1. Failure to limewash factory, &c.	1	2 0 0	0 9 0
John Young (Radcliffe), Ltd., Bradley Mill, Little Lever, Bolton, *Cotton Manufacturers, F.*	Bolton (County), May 31.	Do. do.	1	2 0 0	0 8 6
Collins & Darwell, Union St., Leigh, *Letterpress Printers, F.*	Leigh (County), October 22.	Do. do.	1	1 0 0	0 10 6
Thomas Nuttall & Sons, Ltd., Lakefield Mill, Little Hulton, Bolton, *Cotton Manufacturers, F.*	Bolton (County), November 29.	Do. do.	1	2 0 0	0 8 6
Eli Dyson, Ltd., Victoria Mill, Farnworth, Bolton, *Cotton Spinners, F.*	Do.	Do. do.	1	1 0 0	0 8 6
Howe Bridge Cotton Spinning Co., Ltd., Atherton, *Cotton Spinners, F.*	Leigh (County), December 3.	Do. do	1	0 5 0	0 8 6
		II.—CHILDREN.			
		M. Employment of Children.			
Thomas Brimelow, Minder, employed by Jas. Marsden & Sons, No. 1, Albion Mills, Bolton, *Cotton Spinners, F.*	Bolton (Borough), April 2.	2. Cleaning machinery in motion	1	1 0 0	0 19 0
Thomas Myers, Minder, employed by Barlow & Jones, Ltd., Egyptian Mill, Bolton, *Cotton Spinners, F.*	Do.	Do. do.	1	1 0 0	0 19 0
Great Lever Spinning Co., Ltd., Bolton, *Cotton Spinners, F.*	Bolton (Borough), September 13.	Do. do.	1	0 2 6	0 13 6
Caleb Wright & Co., Ltd., Barnfield Mills, Tyldesley, *Cotton Spinners, F.*	Leigh (County), October 29.	Do. do.	1	0 5 0	1 10 0
Edgworth Spinning Co., Ltd., Turton, *Cotton Spinners, F.*	Bolton (County), November 29.	Do. do.	1*a*	—	0 5 0
		III.—YOUNG PERSONS.			
		B. Employment of Young Persons at Illegal Times.			
Joseph Baron, Preston Road, Standish, Wigan, *Clogger, W.*	Standish (County), June 20.	1. Before or after legal hours ..	1	0 10 0	0 12 0
Mary Ann Isherwood, 121, Market St., Chorley, *Dressmaker, W.*	Chorley (County), July 31.	Do. do.	1	0 5 0	0 12 0
		XI.—COTTON CLOTH FACTORIES ACTS AND FLAX SPECIAL RULES.			
§Croston Manufacturing Co., Jubilee Mill, Croston, *Cotton Manufacturers, F.*	Leyland (County), September 4.	1. Exceeding the maximum limit of humidity.	2*b*	5 0 0	0 19 6
Horrocksex, Crewdson & Co., Ltd., Lorne St., Moses Gate, *Cotton Weavers, F.*	Bolton (County), July 26.	**XV.—EDUCATION ACTS.**	1*c*	—	—

a.—Withdrawn on payment of costs.

b.—Two cases withdrawn on payment of costs.

c.—Dismissed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXII.—CHESHIRE DISTRICT.

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL.		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards :—			
John B. Lees, Knight St., Macclesfield, *Silk Throwster, F.*	Macclesfield (Borough), January 8.	3. Keeping register of children and young persons, &c.	1	—	0 8 6
Saml. Stubbs & Co., Lowe St., Macclesfield, *Silk Manufacturers, F.*	Macclesfield (Borough), March 30.	Do. do.	1	0 10 0	0 10 0
Walter Brough, Byron St., Macclesfield, *Silk Finisher, F.*	Macclesfield (Borough), April 20.	Do. do.	1	0 2 6	0 10 0
John Stringer, Wheelock Road, Sandbach, *Builder, F.*	Sandbach (County), April 25.	Do. do.	1	0 5 0	0 8 6
Howlison, Andrews, & Ferguson, Lancashire Hill, Stockport, *Felt Hat Manufacturers, F.*	Stockport (Borough), May 29.	Do. do.	1	0 10 0	0 11 0
Hat Manufacturers Supply Co., Ltd., Wellington St., Stockport, *Hat Leather Manufacturers, F.*	Stockport (Borough), January 5.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	1	1 0 0	0 9 0
Louis Harrison, Daw Bank, Stockport, *Tailor, W.*	Stockport (Borough), May 9.	Do. do.	1	0 10 0	0 10 0
***Charles Marks,** Daw Bank, Stockport, *Tailor, W.*	Do.	Do. do.	1	0 5 0	0 9 0
Elizabeth Carr, Oxford Road, Altrincham, *Dressmaker, W.*	Altrincham (County), July 23.	Do. do.	1	0 0 6	0 9 6
T. Smith & Son, Church Coppenhall, Crewe, *Builders, F.*	Crewe (Borough), October 23.	7. Notifying accident	1	0 5 0	0 10 0
		B. Posting of Abstracts, Notices, &c.			
Mercerising Co., Ltd., Knight St., Macclesfield, *Cotton Mercerisers, F.*	Macclesfield (Borough), January 8.	1. Failure to affix abstracts and notices.	1	0 5 0	0 10 0
		D. Fencing; Dangerous Machinery, &c.			
Cheadle Hulme Brick & Tile Co., Ltd., Cheadle Hulme, Stockport, *Brick Manufacturers, F.*	Stockport (County), August 9.	1. Failure to fence dangerous machinery, &c.	1	2 0 0	0 10 6
Axon, Grundy & Rowbotham, Hazel Grove, Stockport, *Felt Hat Manufacturers, F.*	Stockport (County), March 8.	2. Penal compensation in cases where death or injury has resulted from :— (*a.*) Failure to fence machinery.	1*a*	1 0 0	0 16 6
		H. Cleanliness, Ventilation, Overcrowding.			
Robert Thorp & Sons, Thorp St., Macclesfield, *Silk Manufacturers, F.*	Macclesfield (Borough), March 5.	1. Failure to limewash factory, &c.	1	0 10 0	0 10 0
Samuel Stubbs & Co., Lowe St., Macclesfield, *Silk Manufacturers, F.*	Macclesfield (Borough), March 30.	Do. do.	1	0 10 0	0 10 0
Reuben Fildes, Reuben St., Stockport, *Cotton Manufacturer, F.*	Stockport (Borough), April 24.	Do. do.	1	0 2 6	0 10 0
J. Shepherd & Son, Town Mill, Sandbach, *Fustian Cutters, F.*	Sandbach (County), April 25.	Do. do.	1	0 5 0	0 8 6
Wm. Anderson & Co., Oakfield Road, Altrincham, *Corset Manufacturers, F.*	Altrincham (County), September 10.	Do. do.	1	0 5 0	0 8 6
Walter Dale, Hatter St., Congleton, *Fustian Cutter, F.*	Congleton (Borough), November 12.	Do. do.	1	0 1 0	0 10 6
Walter Jackson, Mill St., Congleton, *Fustian Cutter, F.*	Congleton (Borough), December 10.	Do. do.	1	0 1 0	0 10 6
William Jackson, Princess St., Congleton, *Fustian Cutter, F.*	Do.	Do. do.	1	0 1 0	0 10 6

a —Adjourned from February 8 to enable occupiers to compensate the injured man. On March 8 occupiers had signed an agreement to pay the man £50 and guarantee him permanent employment at 18*s.* per week.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXII.—CHESHIRE DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		K. Cleanliness, Ventilation, Overcrowding—*cont.*			
Arthur Horrfield, Lawton St., Congleton, *Fustian Cutter, F.*	Congleton (Borough), December 24.	1. Failure to limewash factory, &c.	1	0 1 0	0 10 6
Arthur Horsfield, Canal St., Congleton, *Fustian Cutter, F.*	Do.	Do. do.	1	0 1 0	0 4 6
United Velvet Cutters' Association, Ltd., Congleton, *Fustian Cutters, F.*	Do.	Do. do.	1	0 1 0	0 10 6
J. Robinson & Sons, Romiley, Stockport, *Felt Hat Manufacturers, F.*	Stockport (County), December 27.	4. Allowing factory to be overcrowded, &c.	1	0 10 0	0 10 6
		II.—CHILDREN.			
		L. Employment of Children at Illegal Times.			
Chestergate Hat Manufacturing Co., Ltd., Chestergate, Stockport, *Felt Hat Manufacturers, F.*	Stockport (Borough), March 7.	8. Otherwise than in morning and afternoon sets or on alternate days.	1	0 10 0	0 12 6
C. H. Clayton & Co., Wellington Road, Stockport, *Brush Manufacturers, W.*	Stockport (Borough), August 21.	Do. do.	1	0 2 6	0 11 0
J. Robinson & Sons, Romiley, Stockport, *Felt Hat Manufacturers, F.*	Stockport (County), December 27.	Do. do.	1	0 5 0	0 15 6
		M. Occupation of Children.			
Newton Moor Spinning Co., Ltd., Dukinfield, *Cotton Spinners, F.*	Hyde (County), November 5.	2. Cleaning machinery in motion.	1	0 5 0	0 14 0
Hy. Bayley, Son & Co., Ltd., Bayley St., Stalybridge, *Cotton Spinners and Manufacturers, F.*	Stalybridge (Borough), November 19.	Do. do.	1	1 0 0	0 14 6
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
Saml. Stubbs & Co., Lowe St., Macclesfield, *Silk Manufacturers, F.*	Macclesfield (Borough), March 30.	Employing young person under 16 without certificate of fitness.	1	0 10 0	0 13 6
Walter Brough, Byron St., Macclesfield, *Silk Finisher, F.*	Macclesfield (Borough), April 20.	Do. do.	1	0 2 6	0 10 0
John Stringer, Wheelock Road, Sandbach, *Builder, F.*	Sandbach (County), April 2[illegible].	Do. do.	1	0 5 0	0 13 0
Howlison, Andrews & Ferguson, Lancashire Hill, Stockport, *Felt Hat Manufacturers, F.*	Stockport (Borough), May 29.	Do. do.	1	0 10 0	0 15 6
Isaac Pimblott & Sons, London Road, Northwich, *Boat Builders, F.*	Northwich (County), September 4.	Do. do.	1	0 4 0	0 1 0
		R. Employment of Young Persons at Illegal Times.			
Hat Manufacturers Supply Co., Ltd., Wellington St., Stockport, *Hat Leather Manufacturers, F.*	Stockport (Borough), January 5.	1. Before or after legal hours ..	6	3 0 0	2 8 0
†Cartwright & Rattray, Ltd., Caston Works, Hyde, *Printers and Bookbinders, F.*	Hyde (Borough), January 18.	Do. do.	2	1 0 0	1 7 0
†Novelty Box Co., Ashton Mill, Hyde, *Boxmakers, F.*	Do.	Do. do.	4	2 0 0	2 5 0
Thomas Johnson & Son, Prestbury Road Mill, Macclesfield, *Reed and Heald Manufacturers, F.*	Macclesfield (Borough), January 29.	Do. do.	3	0 10 0	1 9 6

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXII.—CHESHIRE DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		B. Employment of Young Persons at Illegal Times—*cont.*			
Swain & Co., Ltd., King St. East, Stockport, *Letterpress Printers, F.*	Stockport (Borough), May 23.	1. Before or after legal hours ..	2	0 10 0	1 0 0
Anglo-Swiss Condensed Milk Co., Middlewich, *Condensed Milk Manufacturers, F.*	Middlewich (County), August 1.	Do do.	6	0 6 0	3 12 0
*Dairy & Domestic Salt Co., Middlewich, *Salt Manufacturers, F.*	Middlewich (County), December 5.	Do. do.	1	0 2 6	0 15 0
Park Road Spinning Co., Ltd., Dukinfield, *Cotton Spinners, F.*	Dukinfield (County), December 6.	6. At meal times	3	0 15 0	1 2 6
Anglo-Swiss Condensed Milk Co., Middlewich, *Condensed Milk Manufacturers, F.*	Middlewich (County), August 1.	9. At night	1	0 1 0	0 8 6
Geo. Wilks, Ltd., Farrington St., Crewe, *Bakers, W.*	Crewe (Borough), November 6.	Do. do.	1	1 0 0	0 12 6
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
Mary Worrall, 68, Witton St., Northwich, *Dressmaker, W.*	Northwich (County), September 4.	1. Before or after legal hours ..	1	0 4 0	0 1 0
Joseph Gidman, Brook St., Knutsford, *Aërated Water Maker, F.*	Knutsford (County), September 28.	Do. do.	3	0 5 0	1 8 0
Park Road Spinning Co., Ltd., Dukinfield, *Cotton Spinners, F.*	Dukinfield (County), December 6.	6. At meal times	5	1 5 0	1 17 6
		V.—DANGEROUS TRADES, &c.			
Bowman, Thompson & Co., Ltd., Lostock Gralam, Northwich, *Chemical Manufacturers, F.*	Northwich (County), May 8.	1. Failure to observe or affix Special Rules:— Chemical Works:— Having dangerous pan less than 3 feet in height above the ground.	1	1 0 0	0 8 6
Alfred Soragg, paster employed by Tudor Accumulator Co., Dukinfield, *Electric Accumulator Manufacturers, F.*	Dukinfield (County), November 1.	Electric Accumulator Works:— Failure to wear gloves while rubbing.	1	0 2 6	0 7 6
John Gibson, paster employed by Tudor Accumulator Co., Dukinfield, *Electric Accumulator Manufacturers, F.*	Do.	Do. do.	1	0 2 6	0 7 6
Albert Allen, paster employed by Tudor Accumulator Co., Dukinfield, *Electric Accumulator Manufacturers, F.*	Do.	Do. do.	1	0 2 6	0 7 6
		X.—PARTICULARS SECTION.			
§James Arnold, Park Green, Macclesfield, *Silk Manufacturer, F.*	Macclesfield (Borough), November 26.	1. Failure to supply sufficient or correct particulars, or to supply them in legal manner.	2	0 3 6	1 8 0

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXIII.—LIVERPOOL DISTRICT.

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs (6)
		I.—GENERAL.		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
J. Pearson & Co., 9, St. Anne St., Liverpool, *Cabinetmakers, F.*	Liverpool (City), June 6.	1. Notification of commencement of occupation.	1	0 10 0	0 5 6
James Mitty, 34, Naylor St., Liverpool, *Tripe Dresser, F.*	Liverpool (City), July 25.	Do. do.	1	1 0 0	0 5 6
Jacob Bernfield, 1, Litherland Alley, Liverpool, *Tailor, W.*	Liverpool (City), November 21.	Do. do.	1	0 5 0	0 5 6
Blake & Mackenzie, Hanover St., Liverpool, *Cardboard Box Manufacturers, F.*	Liverpool (City), January 10.	3. Keeping register of children, young persons, &c.	1	1 0 0	0 5 6
Cannington, Shaw & Co., Sherdley Works, St. Helens, *Glass Bottle Makers, F.*	St. Helens (Borough), January 12.	Do. do.	1	0 5 0	0 4 6
Billington Bros., Great Homer St., Liverpool, *Wire Mattress Manufacturers, F.*	Liverpool (City), February 14.	Do. do.	1	2 0 0	0 5 6
T. M. Tripp, Arrad St., Liverpool, *Fancy Box Manufacturers, F.*	Do.	Do. do.	1	1 0 0	0 5 6
J. Pearson & Co., 9, St. Anne St., Liverpool, *Cabinetmakers, F.*	Liverpool (City), June 6.	Do. do.	1	0 10 0	0 5 6
Barnet Alper, 23A, Devon St., Liverpool, *Tailor, W.*	Liverpool (City), May 30.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	2	2 0 0	0 11 0
Morris Freeman, Don Chambers, Paradise St., Liverpool, *Tailor, W.*	Liverpool (City) December 5.	Do. do.	1	1 0 0	0 5 6
Thompson Bros., 209, London Road, Liverpool, *Tailors, W.*	Liverpool (City), April 25.	5. Keeping list of outworkers, or keeping it open to inspection, or sending list to H.M. Inspector.	1	1 0 0	0 5 6
*Louis Beaver, Great George Place, Liverpool, *Tailor, W.*	Do.	Do. do.	1	1 0 0	0 5 6
*John Murdock, 20, North John St., Liverpool, *Tailor, W.*	Do.	Do. do.	1	1 0 0	0 5 6
*Joseph Stevens, 56, Kensington, Liverpool, *Tailor, W.*	Do.	Do. do.	1	2 0 0	0 5 6
*J. Birch & Co., 74, London Road, Liverpool, *Tailors, W.*	Do.	Do. do.	1	2 0 0	0 5 6
Pennington & Sons, South John St., Liverpool, *Tailors, W.*	Do.	Do. do.	1	1 0 0	0 5 6
The Don Association of Woollen Manufacturers, Lord St., Liverpool, *Tailors, W.*	Do	Do. do.	1	1 0 0	0 5 6
L. Blumenthall & Co., 69A, Pembroke Place, Liverpool, *Tailors, W.*	Liverpool (City), November 21.	Do do.	1*a*	—	0 5 6
T. M. Ranson, Ltd., 260-8, Great Homer St., Liverpool, *Tailors, W.*	Do.	Do. do.	1	2 0 0	0 5 6
F. D. Bell, 11, Cook St., Liverpool, *Tailor, W.*	Do.	Do. do.	1	2 0 0	0 5 6
W. Fagan & Co., Scotland Road, Liverpool, *Tailors, W.*	Do.	Do. do.	1	2 0 0	0 5 6
Jacob Davies & Co., 15, Russell St., Liverpool, *Tailors, W.*	Do.	Do. do.	1	2 0 0	0 5 6
Burman & Co., 3, Crown St., Liverpool, *Tailors, W.*	Do.	Do. do.	1	2 0 0	0 5 6
A. Blain & Son, 28, Atherton St., Liverpool, *Cabinetmakers, F.*	Liverpool (City), December 5.	7. Notifying accident	1	2 0 0	0 5 6
Matthews Lancashire & Cheshire & North Wales District White Lead Co., Ltd., Old Quay, Runcorn, *White Lead Manufacturers, F.*	Runcorn (County), June 11.	8. Notifying cases of anthrax, or of poisoning by lead, phosphorus, arsenic, or mercury.	1	1 5 0	1 5 6

a.—Withdrawn on payment of costs.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXIII.—LIVERPOOL DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		B. Posting of Abstracts, Notices, &c.			
Louis Hammerstein, 392, Stanley Road, Bootle, *Tailor*, *W.*	Bootle (Borough), February 13.	1. Failure to affix abstracts and notices.	1	0 10 0	0 7 0
Abel Foxall & Sons, 35, Mersey St., Liverpool, *Chainmakers*, *F.*	Liverpool (City), February 14.	Do. do.	1	2 0 0	0 5 6
J. Soloman, 9, Cumberland St., Liverpool, *Shop Fitter*, *W.*	Liverpool (City), February 28.	Do. do.	1	1 0 0	0 5 6
George Capell, 28, Cleveland St., Birkenhead, *Baker*, *W.*	Birkenhead (Borough), April 6.	Do. do.	1	0 10 0	0 6 6
Wm. Pitt Pritchard, 48, Church Rd., Birkenhead, *Baker*, *W.*	Do.	Do. do	1	0 10 0	0 6 6
Jane Butterworth, 235, Lord St., Southport, *Dressmaker*, *W.*	Southport (Borough), May 28.	Do. do.	1	0 2 6	0 8 0
Ramm & Endbinder, 2, Dalton St., Liverpool, *Cabinetmakers*, *W.*	Liverpool (City), May 30.	Do. do.	1	1 0 0	0 5 6
Herbert Bowland, 30, Sefton St., Southport, *Cycle Maker*, *W.*	Southport (Borough), November 26.	Do. do.	1	0 1 6	0 3 6
David Ambrose, 188, Mill St., Liverpool, *Baker*, *W.*	Liverpool (City), December 5.	Do. do.	1	1 0 0	0 5 6
		C. Obstruction or Personation of H.M. Inspectors.			
Cannington, Shaw, & Co., Sherdley Works, St. Helens, *Glass Bottle Makers*, *F.*	St. Helens (Borough), January 12.	1. Obstruction	1	2 0 0	0 10 0
John Smart, Foreman, employed by Cannington, Shaw, & Co., Sherdley Works, St. Helens, *Glass Bottle Makers*, *F.*	Do.	Do. do.	1	2 0 0	0 14 0
		D. Fencing; Dangerous Machinery, &c.			
Peter Tyson, Dryden St., Liverpool, *Building Materials Manufacturer*, *F.*	Liverpool (City), February 14.	1. Failure to fence dangerous machinery.	1	0 10 0	0 5 6
North Shore Mill Co., Ltd., Boundary St., Liverpool, *Flour Millers*, *F.*	Do.	Do. do.	1	5 0 0	0 5 6
J. Braithwaite, 4, Embleton St., Liverpool, *Pork Butcher*, *F.*	Liverpool (City), February 28.	Do. do.	1	5 0 0	0 5 6
R. Silcock & Sons, Little Howard St., Liverpool, *Oil Cake Manufacturer*, *F.*	Do.	Do. do.	1	10 0 0	0 5 6
*Dunlop. Bell, & Co., Greenland St., Liverpool, *Engineers*, *F.*	Liverpool (City), March 7.	Do. do.	1	10 0 0	0 16 6
H. G. Pay, Mount Pleasant, Liverpool, *Laundry Occupier*, *F.*	Liverpool (City), March 21.	Do. do	1	5 0 0	0 5 6
Campbell Collin, Mount Vernon, Liverpool, *Furniture Manufacturer*, *F.*	Do.	Dc do.	1	5 0 0	0 5 6
R. McGee & Co., 34, S. Castle St., Liverpool, *Letterpress Printers*, *F.*	Liverpool (City), July 25.	Do. do.	1	5 0 0	0 5 6
*J. P. & J. W. Broadbent, 135, Duke St., Liverpool, *Brassfounders*, *F.*	Liverpool (City), August 8.	Do. do.	1*a*	—	0 5 6
J. H. Wilson & Co., Ltd., Dock Road, Seacombe, *Engineers*, *F.*	Wirral (County), August 29.	Do. do.	1	0 10 0	0 8 6
S. Reece & Sons, 21, Ainsworth St., Liverpool, *Cream and Butter Manufacturers*, *F.*	Liverpool (City), September 26.	Do. do.	1	5 0 0	0 5 6
Walter Bramley, 21, Jasmine St., Liverpool, *Aërated Water Manufacturer*, *F.*	Liverpool (City), October 10.	Do. do.	1	5 0 0	0 5 6
Currie, Rowlands & Co., Dock Road, Seacombe, *Cattle Food Makers*, *F.*	Wirral (County), October 17.	Do. do.	1	2 5 0	0 8 6
J. Paterson & Son, 60, Soho St., Liverpool, *Joiners and Builders*, *F.*	Liverpool (City), October 31.	Do. do.	1	2 2 0	0 5 6
Evans, Stott & Co., Queen St., Liverpool, *Paint Manufacturers*, *F.*	Liverpool (City), November 21.	Do. do.	1	5 0 0	0 5 6

a.—As the work had been done satisfactorily since previous hearing, costs only were inflicted

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXIII.—LIVERPOOL DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		D. Fencing; Dangerous Machinery, &c.—*cont.*			
Fraser & Co., Davies St., Bootle, *Fellmongers, F.*	Bootle (Borough), March 20.	2. Penal Compensation in cases where death or injury has resulted from:— Failure to fence machinery.	1*a*	2 0 0	0 10 6
Moore & Co., 20, High St., Runcorn, *Letterpress Printers, F.*	Runcorn (County), May 21.	Do. do.	1*b*	2 0 0	0 16 0
City Tin Co., 54, Gildarts Gardens, Liverpool, *Tin Canister Manufacturers, F.*	Liverpool (City), October 10.	Do. do.	1	15 0 0	0 5 6
		E. Cleanliness, Ventilation, Overcrowding.			
Robinson's Brewery Co., Holly St., Liverpool, *Aërated Water Manufacturers, F.*	Liverpool (City), May 30.	1. Failure to limewash factory, &c.	1	1 0 0	0 5 6
Walter Bramley, 21, Jasmine St., Liverpool, *Aërated Water Manufacturer, F.*	Liverpool (City), October 10.	Do. do.	1	2 0 0	0 5 6
Haigh & Co., Fraser St., Liverpool, *Joiners and Builders, F.*	Liverpool (City), October 31.	Do. do.	1	1 0 0	0 5 6
*Nicol, Kendrick & Co., Ltd., 67/9, Victoria St., Liverpool, *Letterpress Printers, F.*	Liverpool (City), December 5.	Do. do.	1	1 0 0	0 5 6
Do. do.	Liverpool (City), August 22.	3. Neglecting to provide or use fans, &c., to prevent inhalation of dust or fumes.	1	2 0 0	0 5 6
		II.—CHILDREN.			
		K. Age, Fitness, &c., of Children.			
Cannington, Shaw, & Co., Sherdley Works, St. Helens, *Glass Bottle Makers, F.*	St. Helens (Borough), January 12.	3. Without certificate of fitness ..	2	2 0 0	1 0 0
W. Ashton & Sons, Church Walk, Southport, *Paper Bag and Fancy Box Manufacturers, F.*	Southport (Borough), March 28.	Do. do.	1	0 2 6	0 8 0
John Lloyd, 54, Moorfields, Liverpool, *Bookbinder and Machine-ruler, F.*	Liverpool (City), September 26.	Do. do.	1	1 0 0	0 5 6
		L. Employment of Children at Illegal Times.			
Amato Buschini, 194, Scotland Road, Liverpool, *Confectioner, W.*	Liverpool (City), May 30.	1. Before or after legal hours ..	1	1 0 0	0 5 6
John Woodhall, 265, West Derby Road, Liverpool, *Baker, W.*	Liverpool (City), January 10.	9. At night	1	1 0 0	0 5 6
Cannington, Shaw, & Co., Sherdley Works, St. Helens, *Glass Bottle Makers, F.*	St. Helens (Borough), January 12.	Do. do.	5	5 0 0	4 2 6
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
Billington Bros., Great Homer St., Liverpool, *Wire Mattress Manufacturers, F.*	Liverpool (City), February 14.	Employing young person under 16 without certificate of fitness.	7	1 15 0	1 13 6
W. Ashton & Sons, Church Walk, Southport, *Paper Bag and Fancy Box Manufacturers, F.*	Southport (Borough), March 26.	Do. do.	2	0 5 0	0 10 0
J. Foster & Co., Ltd., Atlas St., St. Helens, *Ironfounders, F.*	St. Helens (Borough), April 21.	Do. do.	2	0 1 0	0 9 0

a—Defendants compensated injured person.

b—Defendants stated that they were paying half wages, and would take the girl back when fit to work. The injury was slight.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXIII.—LIVERPOOL DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS—*cont.*		£ s. d.	£ s. d.
		Q. Fitness, &c.—*cont.*			
J. Pearson & Co., 9, St. Anne St., Liverpool, *Cabinetmakers, F.*	Liverpool (City), June 6	Employing young person under 16 without certificate of fitness.	3	0 15 0	1 13 6
John Lloyd, 34, Moorfields, Liverpool, *Bookbinder and Machine-ruler, F.*	Liverpool (City), September 26.	Do. do.	2	2 0 0	0 11 0
A. Blain & Son, 28, Atherton St., Liverpool, *Cabinetmakers, F.*	Liverpool (City), December 5.	Do. do.	2	2 0 0	0 11 0
Nicol, Kendrick & Co., Ltd., 67-9, Victoria St., Liverpool, *Letterpress Printers, F.*	Do.	Do. do.	2	2 0 0	0 11 0
		R. Employment of Young Persons at Illegal Times.			
Blake & Mackenzie, Hanover St., Liverpool, *Cardboard-box Manufacturers, F.*	Liverpool (City), January 10.	1. Before or after legal hours ..	1	1 0 0	0 5 6
L. Baker, Forewoman, employed by Elizabeth Roberts, 2, Sandon Terrace, Liverpool, *Dressmaker, W.*	Liverpool (City), January 17.	Do. do.	3a	3 0 0	0 16 6
J. H. Brough & Co., 40, Canning Place, Liverpool, *Salt Merchants, F.*	Liverpool (City), February 14.	Do. do.	3	3 0 0	0 16 6
Liverpool Tin Canister Co., Ltd., 4 & 5, Chapel Gardens, Liverpool, *Tin Canister Manufacturers, F.*	Liverpool (City), March 14.	Do. do.	2b	2 0 0	0 11 0
W. T. Holloway & Son, 6, Tabley St., Liverpool, *Sawmillers, F.*	Liverpool (City), March 21.	Do. do.	2	2 0 0	0 11 0
*Dunlop, Bell & Co., Greenland St., Liverpool, *Engineers, F.*	Liverpool (City), April 25.	Do. do.	2	2 0 0	0 11 0
Samuel Quilliam, 31, Peter's Lane, Liverpool, *Sack Maker, F.*	Liverpool (City), May 30.	Do. do.	1	1 0 0	0 5 6
Isaac Foulkes, Don Chambers, Paradise St., Liverpool, *Letterpress Printer, F.*	Liverpool (City), June 6	Do. do.	1	1 0 0	0 5 6
Tenant & Co., Ltd., 97, Park St., Bootle, *Cocoa-nut Butter Manufacturers, F.*	Bootle (Borough), June 19.	Do. do.	4	1 0 0	1 8 0
Idris & Co., Ltd., 69-81, Northumberland St., Liverpool, *Aërated Water Manufacturers, F.*	Liverpool (City), July 25.	Do. do.	4	4 0 0	1 2 0
Samuel Stott & Co., Ltd., Gardner's Row, Liverpool, *Packing-case Makers, F.*	Do.	Do. do.	2	2 0 0	0 11 0
James Mitty, 34, Naylor St., Liverpool, *Tripe-dresser, F.*	Do.	Do. do.	2	2 0 0	0 11 0
Christopher Armstrong, West Derby Road, Liverpool, *Confectioner, W.*	Do.	Do. do.	1	1 0 0	0 5 6
Robert James France, 91, Portland St., Southport, *Confectioner, W.*	Southport (Borough), July 30.	Do. do.	5	1 5 0	2 0 0
J. & J. H. Preston & Co., 35, Eastbank St., Southport, *Milliners, W.*	Do.	Do. do.	1	0 5 0	0 5 0
E. E. Boffin, 23A, Scarisbrick Avenue, Southport, *Dressmaker, W.*	Southport (Borough), September 10.	Do. do.	2	0 10 0	0 16 0
Blood & Co., 70-72, Grafton St., Liverpool, *Packing Case Manufacturers, F.*	Liverpool (City), September 26.	Do. do.	2	4 0 0	0 11 0
Barker & Dobson, 13, Hope St., Liverpool, *Confectioners, F.*	Do.	Do. do.	1	2 0 0	0 5 6
S. Allsopp & Sons, Ltd., 21, Love Lane, Liverpool, *Beer Bottlers, F.*	Do.	Do. do.	3	6 0 0	0 16 6
Arrowsmith, Sinclair & Co., Ltd., Upper William St., Liverpool, *Engineers, F.*	Do.	Do. do.	3	6 0 0	0 16 6
James Isaac, 66, Picton Road, Liverpool, *Boot Maker, W.*	Do.	Do. do.	1	2 0 0	0 5 6
Thos. Edmondson, 53, Traverse St., St. Helens, *Aërated Water Manufacturer, F.*	St. Helens (Borough), September 28.	Do. do.	1	0 2 6	0 4 6
J. Woore, Richmond Row, Liverpool, *Ironfounder, F.*	Liverpool (City), December 5.	Do. do.	1	1 0 0	0 5 6

a.—Occupier availed herself of s. 87 (1878), and summoned the actual offender.

b.—Defendants were granted permission to work overtime on Government contract, but failed to comply with conditions laid down as to notifying H.M. Inspector on each occasion; they also employed persons overtime on private work.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXIII.—LIVERPOOL DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		R. Employment of Young Persons at Illegal Times—*cont.*			
E. M. Crawford, 34, Bold St., Liverpool, *Umbrella Maker, W.*	Liverpool (City), May 30.	4. Beyond legal hour on half-holiday.	2	2 0 0	0 11 0
King & Heywood, Ltd., 189, Grange Road, Birkenhead, *Milliners, W.*	Birkenhead (Borough), June 1.	Do. do.	2	0 10 0	0 19 0
Edith Ground, 35, Bold St., Liverpool, *Dressmaker, W.*	Liverpool (City), March 26.	6. At meal times	4	2 0 0	1 2 0
Beanor Bros., Brasenose Road, Bootle, *Matchwood Manufacturers, F.*	Bootle (Borough), April 24.	Do. do.	4	0 4 0	0 10 0
Lever Bros., Port Sunlight, Bebington, *Soap Manufacturers, F.*	Birkenhead (County), April 26.	Do. do.	8a	—	—
Alfred Munnerly, 58, Penton St., Liverpool, *Baker, W.*	Liverpool (City), February 14.	9. At night	1	1 0 0	0 10 0
George Capell, 23, Cleveland St., Birkenhead, *Baker, W.*	Birkenhead (Borough), April 6.	Do. do.	1	1 0 0	0 9 6
Wm. Pitt Pritchard, 48, Church Road, Birkenhead, *Baker, W.*	Do.	Do. do.	1	0 10 0	0 9 6
Thos. Reynolds, 188, Grange Road, Birkenhead, *Baker, W.*	Do.	Do. do.	1	1 0 0	0 9 6
Thos. Younds, 434, Borough Road, Birkenhead, *Baker, W.*	Do.	Do. do.	1	1 0 0	0 13 1
Thos. Atkinson, 70, Bold St., Liverpool, *Dressmaker, W.*	Liverpool (City), May 30.	Do. do.	1	1 0 0	0 5 6
Thos. E. Owens, 58, New Chester Road, New Ferry, *Baker and Confectioner, W.*	Wirral (County), September 6.	Do. do.	1	1 0 0	0 12 0
City Tin Co., 54, Gildarts Gardens, Liverpool, *Tin Canister Manufacturers, F.*	Liverpool (City), October 10.	Do. do.	2	4 0 0	0 19 0
Do. do.	Do.	10. On Sunday	1	2 0 0	0 5 6
Thos. Fisher & Sons, 139, Lord St., Southport, *Confectioners, W.*	Southport (Borough), September 10.	11. On statutory holiday	2	0 10 0	0 16 0
R. B. Haslam, Hawesside St., Southport, *Beer Bottler, F.*	Do.	Do. do.	1	0 5 0	0 8 0
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
L. Baker, Forewoman, employed by Elizabeth Roberts, 2, Saudon Terrace, Liverpool, *Dressmaker, W.*	Liverpool (City), January 17.	1. Before or after legal hours ..	4b	4 0 0	1 2 0
Bootle Biscuit Co., Jersey St., Bootle, *Flour-packers, F.*	Bootle (Borough), February 13.	Do. do.	6	0 10 0	3 3 0
T. F. Ashe, Son, & Nephew, Atherton St., Liverpool, *Beer Bottlers, F.*	Liverpool (City), February 28.	Do. do.	5c	—	1 7 6
Liverpool Tin Canister Co., Ltd., 4 & 5, Chapel Gardens, Liverpool, *Tin Canister Manufacturers, F.*	Liverpool (City), March 14.	Do. do.	8d	8 0 0	2 4 0
Peter Jackson, 135, Eastbank St., Southport, *Tailor, W.*	Southport (Borough), May 28.	Do. do.	4	2 0 0	2 1 0
Samuel Quilliam, 31, Peter's Lane, Liverpool, *Sack Maker, F.*	Liverpool (City), May 30.	Do. do.	3	3 0 0	0 16 6
Christopher Armstrong, West Derby Road, Liverpool, *Confectioner, W.*	Liverpool (City), July 25.	Do. do.	2	2 0 0	0 11 6
E. E. Bolin, 23A, Scarisbrick Avenue, Southport, *Dressmaker, W.*	Southport (Borough), September 10.	Do. do.	3	0 15 0	1 4 0
Benjamin Purser, Bank Passage, Lord St., Southport, *Upholsterer, W.*	Southport (Borough), November 26.	Do. do	3	0 15 0	1 10 0

a.—Dismissed.

b.—Occupier availed herself of s. 87 (1878), and summoned the actual offender.

c.—Withdrawn on payment of costs. It was explained that the work was on Government order for troopships, and that in their haste defendants had overlooked their obligations.

d.—Defendants were granted permission to work overtime on Government contract, but failed to comply with conditions laid down as to notifying H.M. Inspector on each occasion. They also employed persons overtime on private work.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXIII.—LIVERPOOL DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		IV.—WOMEN—*cont.*		£ s. d.	£ s. d.
		W. Employment of Women at Illegal Times—*cont.*			
Edith Ground, 35, Bold St., Liverpool, *Dressmaker, W.*	Liverpool (City), March 28.	6. At meal times	3	1 10 0	0 18 6
Seanor Bros., Brasenose Road, Bootle, *Matchwood Manufacturers, F.*	Bootle (Borough), April 24.	Do. do.	1	0 1 0	0 2 6
Wm. Clutton, Paradise St., Liverpool, *Tailor, W.*	Liverpool (City), May 30.	Do. do.	1	0 10 0	0 5 6
Thomas Atkinson, 70 Bold St., Liverpool, *Dressmaker, W.*	Do.	9. At night	5	5 0 0	1 7 6
City Tin Co., 54, Gildarts Gardens, Liverpool, *Tin Canister Manufacturers, F.*	Liverpool (City), October 10.	Do do.	1	2 0 0	0 9 6
*Peter Jackson, 135 Eastbank St., Southport, *Tailor, W.*	Southport (Borough), July 30.	10. On Sunday	1	2 0 0	0 8 0
City Tin Co., 54, Gildarts Gardens, Liverpool, *Tin Canister Manufacturers, F.*	Liverpool (City), October 10.	Do. do.	2	4 0 0	0 11 6
Thos. Fisher & Sons, 139, Lord St., Southport. *Confectioners, W.*	Southport (Borough), September 10.	11. On statutory holiday	3	0 15 0	1 4 6
		V.—DANGEROUS TRADES, &c.			
Matthews Lancashire & Cheshire & North Wales District White Lead Co., Ltd., Old Quay, Runcorn, *White Lead Manufacturers, F.*	Runcorn (County), June 11.	1. Failure to observe or affix Special Rules. White Lead Works:— Failure to obtain approval of H.M. Chief Inspector for their method of packing and depositing white lead elsewhere than under a cover or fan.	1	2 10 0	1 5 6
J. P. & J. W. Broadbent, 135, Duke St., Liverpool, *Brassfounders, F.*	Liverpool (City), July 25.	Brass, &c., Works:— Failure to limewash ..	1	0 5 0	0 5 6

XXXIV.—BLACKBURN DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
E. Duckworth, 43, Larkhill, Blackburn, *Dressmaker, W.*	Blackburn (Borough), June 14.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	1	0 10 0	0 10 0
Burnley Equitable Co-operative & Industrial Society, Ltd., Padiham Road, Burnley, *Dressmakers, W.*	Burnley (Borough), June 27.	Do. do.	1	0 10 0	0 14 6
John Buchanan, 40, Hammerton St., Burnley, *Dressmaker, W.*	Burnley (Borough), July 4.	Do. do.	1	0 10 0	0 14 6
Colne & District Co-operative Society, Ltd., 11, Exchange St., Colne, *Dressmakers, W.*	Colne (Borough), July 23.	Do. do.	1	0 10 0	0 0 6
Francis McEvoy, 36 St. James' St., Burnley, *Dressmaker, W.*	Burnley (Borough), July 25.	Do do.	1	0 10 0	0 13 6
Fanny Penny, 88, Padiham Road, Burnley, *Dressmaker, W.*	Do.	Do do.	1	0 0 6	0 14 6
Nelson Co-operative & Industrial Society, Ltd., Leeds Road, Nelson, *Dressmakers, W.*	Nelson (Borough), October 6.	Do. do.	1	0 10 0	0 15 6

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXIV.—BLACKBURN DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c.—*cont.*			
		Failure as regards:—			
Briggs Bros., Vale Mill, Darwen, *Cotton Manufacturers, F.*	Darwen (Borough), November 15.	7. Notifying accident	1	0 2 6	0 13 0
James Boyle & Co., Navigation Mill, Blackburn, *Confectionery Manufacturers, F.*	Blackburn (Borough), November 29.	Do. do.	1	1 0 0	0 10 0
James Henry Proctor, Manager and member of firm of "John Sutcliffe," Fulledge Mill, Burnley, *Cotton Manufacturer, F.*	Burnley (Borough), February 14.	11. Forging, &c., certificate, or making false entry in register or document.	1	1 0 0	0 17 0
		B. Posting of Abstracts, Notices, &c.			
Frederick Sutcliffe, 59, Bankhouse Road, Nelson, *Clog Maker, W.*	Nelson (Borough), October 6.	1. Failure to affix abstracts and notices.	1	0 5 0	0 14 0
		C. Obstruction or Personation of H.M. Inspectors.			
[a]John William Bury, 3, Lynwood Villas, Darwen, Manager, employed by Eccles Bros., Bottom Croft Mill, Darwen, *Cotton Manufacturers, F.*	Darwen (Borough), January 4.	1. Obstruction	1	0 5 0	0 13 6
		D. Fencing; Dangerous Machinery, &c.			
John Turton, Oak Mount Chair Works, Burnley, *Chair Manufacturer, F.*	Burnley (Borough), February 14.	1. Failure to fence dangerous machinery.	1	0 10 0	0 16 6
Richard Dean & Sons, Plumbe St., Burnley, *Sawmillers, F.*	Burnley (Borough), February 21.	Do. do.	1s	—	0 11 0
[a]John Turton, Oak Mount Chair Works, Burnley, *Chair Manufacturer, F.*	Burnley (Borough), May 30.	Do. do.	1	1 0 0	0 14 6
[a]Eli Heyworth & Son, Audley Hall Mill, Blackburn, *Cotton Manufacturers, F.*	Blackburn (Borough), October 11.	2. Penal Compensation in cases where death or injury has resulted from:— Failure to fence machinery.	1b	25 0 0	2 1 0
		II.—CHILDREN.			
		L. Employment of Children at Illegal Times.			
W. H. Almond, Gorse Bridge Mill, Blackburn, *Cotton Manufacturer, F.*	Blackburn (Borough), May 21.	5. At meal times	2	2 0 0	1 0 0
J. & J. A. Porter, Waterloo Mill, Blackburn, *Cotton Manufacturers, F.*	Do.	Do. do.	1	1 0 0	0 10 0
R. H. Bateson, George St., West, Blackburn, *Cotton Manufacturer, F.*	Blackburn (Borough), July 26.	Do. do.	2	2 0 0	1 0 0
		M. Occupation of Children.			
Woodfield Manufacturing Company, Woodfield Mill, Trafalgar St., Burnley, *Cotton Manufacturers, F.*	Burnley (Borough), October 3.	2. Cleaning machinery in motion	1	0 10 0	0 12 0
Foulds, Thornber & Co., Healy Wood Shed, Burnley, *Cotton Manufacturers, F.*	Burnley (Borough), December 5.	Do. do.	1	0 10 0	0 14 6
O. & J. Folds, Rishton Mill, Burnley, *Cotton Spinners, F.*	Burnley (Borough), October 17.	3. Remaining between fixed and traversing parts of a machine.	1	1 0 0	0 16 6

a.—An order was made for the circular saws to be guarded within 28 days.
b.—The Magistrates recommended that £20 be invested for the benefit of the injured person.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXIV.—BLACKBURN DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS.		£ s. d.	£ s. d.
		Q. Fitness, &c.			
John Sutcliffe, Fulledge Mill, Burnley, *Cotton Manufacturer F*	Burnley (Borough), February 14.	Employing young person under 16 without certificate of fitness.	1	0 10 0	0 18 6
		R. Employment of Young Persons at Illegal Times.			
John Catlow & Son, Olive Mill, Darwen, *Cotton Manufacturers, F.*	Darwen (Borough), June 7.	1. Before or after legal hours ..	2	0 2 0	0 19 0
E. Duckworth, 43, Larkhill, Blackburn, *Dressmaker, W.*	Blackburn (Borough), June 14.	Do. do.	3	0 10 0	0 16 6
Burnley Equitable Co-operative & Industrial Society, Ltd., Padiham Road, Burnley, *Dressmakers, W.*	Burnley (Borough), June 27.	Do. do.	1	0 10 0	0 14 6
Nelson Co-operative & Industrial Society, Ltd., Leeds Road, Nelson, *Dressmakers, W.*	Nelson (Borough), October 6.	Do. do.	1	0 10 0	0 15 0
*Cotton Hall Spinning & Manufacturing Co., Ltd., Darwen, *Cotton Spinners and Manufacturers, F.*	Darwen (Borough), October 18.	4. Beyond legal hour on half-holiday.	3	0 5 0	1 3 6
Whipp Bros., Primrose Mill, Church, *Cotton Manufacturers, F.*	Church (County), February 22.	6. At meal times	2	—	0 12 0
J. & J. A. Porter, Waterloo Mill, Blackburn, *Cotton Manufacturers, F.*	Blackburn (Borough), May 21.	Do. do.	4	2 0 0	1 6 0
W. H. Almond, Gorse Bridge Mill, Blackburn, *Cotton Manufacturer, F.*	Do.	Do do.	2	2 0 0	1 0 0
H. Ridehalgh & Son, Bradley Shed, Nelson, *Cotton Manufacturers, F.*	Nelson (Borough), October 6.	9. At night	2	0 5 0	0 13 0
George Monk, Copy Nook, Blackburn, *Tripe-dresser, W.*	Blackburn (Borough), October 16.	10. On Sunday	2	1 0 0	1 4 0
Gazette Printing Co., Ltd., Bank Side, Darwen, *Letterpress Printers, F.*	Darwen (Borough), November 8.	Do. do.	3	0 2 6	1 10 0
Ransom & Hartley, Whittam Street, Burnley, *Bookbinders, F.*	Burnley (Borough), May 16.	11. On statutory holiday	1	—	0 19 0
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
Mary Bradley, 5, Curzon St., Burnley, *Dressmaker, W.*	Burnley (Borough), June 27.	1. Before or after legal hours ..	5	0 5 0	2 12 6
Frederick Harris, 56, Rectory Road, Burnley, *Baker, W.*	Burnley (Borough), July 4.	Do. do.	1	0 10 0	0 14 6
Elizabeth Thornton, 34, Albert Road, Colne, *Milliner, W.*	Colne (Borough), July 23.	Do. do.	3a	0 10 0	0 19 6
*Sarah Fowler & Sons, 15, Preston New Road, Blackburn, *Dressmakers, W.*	Blackburn (Borough), October 4.	4. Beyond legal hour on half-holiday.	5	3 0 0	2 10 0
Whipp Bros., Primrose Mill, Church, *Cotton Manufacturers, F.*	Church (County), February 22.	6. At meal times	2	1 0 0	1 6 6
W. H. Almond, Gorse Bridge Mill, Blackburn, *Cotton Manufacturer, F.*	Blackburn (Borough), May 21.	Do. do.	0	1 0 0	1 5 0

a.—Two cases withdrawn on payment of costs.

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TABLE 36.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXIV.—BLACKBURN DISTRICT—*continued.*

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		IV.—WOMEN—*cont.*		£ s. d.	£ s. d.
		W. Employment of Women at Illegal Times—*cont.*			
Westgate Manufacturing Co., Ltd., Wiseman St., Burnley, *Cotton Manufacturers, F.*	Burnley (Borough), May 30.	6. At meal times	6	0 10 0	3 0 6
J. & W. Crabtree, Birchinlee Mill, Colne, *Cotton Manufacturers, F.*	Colne (Borough), July 9.	Do. do.	3	3 0 0	1 8 6
R. H. Bateson, George St., West, Blackburn, *Cotton Manufacturer, F.*	Blackburn (Borough), July 26.	Do. do.	2	2 0 0	1 6 6
Wellington Mill Co., Ltd., Park View Mill, Great Harwood, Blackburn, *Cotton Manufacturers, F.*	Blackburn (County), September 5.	Do. do.	3	3 0 0	1 11 6
*Darwen Spinning Co., Ltd., No. 1 Mill, Darwen, *Cotton Spinners, F.*	Darwen (Borough), September 6.	Do. do.	10	2 0 0	3 8 0
Thomas Wilkinson, Sudell Side Mill, Darwen, *Cotton Manufacturer, F.*	Do.	Do. do.	10	1 0 0	3 8 0
Yates & Carmichael, Whalley Banks Mill, Blackburn, *Cotton Manufacturers, F.*	Blackburn (Borough), December 19.	Do. do.	10	5 0 0	3 5 0
B. Thornber & Sons, Ltd., Daneshouse Shed, Burnley, *Cotton Manufacturers, F.*	Burnley (Borough), May 30.	9. At night	3	0 10 0	1 13 6
*Winifred Walsh, 4, Holme St., Blackburn, *Milliner, W.*	Blackburn (Borough), June 14.	Do. do.	1	1 0 0	0 10 0
Margaret Tattersall, 69, Standish Street, Burnley, *Dressmaker, W.*	Burnley (Borough), June 27.	Do. do.	1	0 5 0	0 14 6
Jane Roberts, 35-37, Market St., Burnley, *Milliner, W.*	Do.	Do. do.	2	0 5 0	1 3 6
H. Ridehalgh & Son, Bradley Shed, Nelson, *Cotton Manufacturers, F.*	Nelson (Borough), October 6.	Do. do.	3	0 5 0	1 8 6
W. W. Graham, 99, St. James St., Burnley, *Tailor, W.*	Burnley (Borough), May 16.	11. On statutory holiday	2	0 5 0	1 4 6
		X.—PARTICULARS SECTION.			
*†Hollingreave Manufacturing Co., Ltd., Clifton Shed, Burnley, *Cotton Manufacturers, F.*	Burnley (Borough), April 25.	1. Failure to supply sufficient or correct particulars, or to supply them in legal manner.	2	2 0 0	1 13 6
†John Southworth & Sons, Brook's Mill, Clitheroe, *Cotton Manufacturers, F.*	Clitheroe (Borough), May 3.	Do. do.	2	1 0 0	1 13 6
		XI.—COTTON CLOTH FACTORIES ACTS AND FLAX SPECIAL RULES.			
†John Fish, Ltd., Primrose Mill, Blackburn, *Cotton Manufacturers, F.*	Blackburn (Borough), February 1.	3. Failure to ventilate properly ..	1a	—	0 3 0
†A. & A. Birtwistle, Wensley Fold New Mill, Blackburn, *Cotton Manufacturers, F.*	Do.	Do. do.	1a	—	0 3 0
†Witham Bros., Plumbe St., Burnley, *Cotton Manufacturers, F.*	Burnley (Borough), November 7.	Do. do.		5 0 0	0 12 0
*†Hartley Bros., Alma Mill, Blackburn, *Cotton Manufacturers, F.*	Blackburn (Borough), November 8.	Do. do.	1	5 0 0	2 19 6
†John Fish, Ltd., Primrose Mill, Blackburn, *Cotton Manufacturers, F.*	Blackburn (Borough), February 1.	7. Producing artificial humidity from impure water.	1a	—	0 5 0
†Eccles Bros., Bottom Croft Mill, Darwen, *Cotton Manufacturers, F.*	Darwen (Borough), January 4.	11. Failure to keep clean ducts for introduction of humidified air.	1b	—	—

a.—Cases withdrawn on payment of costs, assurances having been given that the law would be complied with at once.

b.—Dismissed. Three witnesses in the employ of the defendants swore that the duct H.M. Inspector had complained of was clean, although on cross-examination one of them admitted that immediately after the Inspector's visit he had told the man whose duty it was to have cleaned it that it was dirty.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXV.—PRESTON DISTRICT.

Defendant. (1)	Petty Sessional Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
				£ s. d.	£ s. d.
		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
James Ellershaw, 17, Market St., Lancaster, *Dressmaker, W.*	Lancaster (Borough), July 19.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	1	—	0 9 0
		D. Fencing; Dangerous Machinery, &c.			
John Stones, Roeside, Ulverston, *Shutter Maker, F.*	Ulverston (County), September 6.	2. Penal Compensation in cases where death or injury has resulted from:— Failure to fence machinery.	1	1 0 0	1 0 6
		III.—YOUNG PERSONS.			
		B. Employment of Young Persons at Illegal Times.			
Edward Armstrong, Senhouse St., Workington, *Clog Maker, W.*	Workington (Borough), May 30.	1. Before or after legal hours ..	1	0 2 0	0 6 0
James Ellershaw, 17, Market St., Lancaster, *Dressmaker, W.*	Lancaster (Borough), July 19.	Do. do.	1	0 2 6	0 12 6
		IV.—WOMEN.			
		B. Employment of Women at Illegal Times.			
British Manufacturing Confectionery Company, Back Threlfall Road, South Shore, Blackpool, *Confectioners, F.*	Blackpool (Borough), October 1.	1. Before or after legal hours ..	3	0 7 0	1 4 0
Kate Knewstubbs, 27A, Church St., Lancaster, *Dressmaker, W.*	Lancaster (Borough), February 5.	9. At night	2a	—	—
		XI.—COTTON CLOTH FACTORIES ACTS AND FLAX SPECIAL RULES.			
§Hartley & Co., Fylde Road, Preston, *Cotton Manufacturers, F.*	Preston (Borough), June 1.	2. Failure to ventilate properly ..	1a	—	—
§Hopkins, Martin & Co., Astley Field Mill, Preston, *Cotton Manufacturers, F.*	Preston (Borough), July 18.	9. Failure to whitewash outside of roof.	1	5 0 0	0 8 6
Do. do	Do.	11. Failure to keep clean ducts for introduction of humidified air.	1b	—	0 3 6

a.—Dismissed.
b.—Withdrawn on payment of costs.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXVI.—WEST SCOTLAND DISTRICT.

Defendant. (1)	Sheriff Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL.		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
J. & T. Hodge, South Portland St., Glasgow, *Cigarette Manufacturers, F.*	Glasgow, April 20 ..	1. Notification of commencement of occupation.	1	2 0 0	0 3 3
British Canadian Furniture Co., Macalpine St., Glasgow, *Cabinetmakers, W.*	Do.	Do. do.	1	0 15 0	0 4 11
Wm. Kidd, junr., 7, Smith St., Hillhead, Glasgow, *Firewood Manufacturer, F.*	Glasgow, October 18 ..	Do. do.	1	0 5 0	0 5 4
Wm. Joiner, Canal St., Clydebank, *Firewood Merchant, F.*	Dumbarton, October 26.	Do. do.	1	0 10 6	0 7 6
†R. F. & J. Alexander, Ltd., 100, Duke St., Glasgow, *Cotton Thread Manufacturers, F.*	Glasgow, May 15 ..	3. Keeping register of children and young persons, &c.	1	0 5 0	0 1 8
Wm. Thomson, Polmadie, Glasgow, *Brickmaker, F.*	Glasgow, June 1 ..	Do. do.	1	1 0 0	0 10 8
Melvin Bros., Ltd., Cornwall St., Kinning Park, Glasgow, *Boot Manufacturers, F.*	Glasgow, October 18 ..	Do. do.	1	0 10 0	0 10 8
James Black & Co., Ltd., Dalmonach, Bonhill, *Calico Printers, F.*	Dumbarton, January 18.	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	1	5 0 0	0 1 3
Adam Boyd & Sons, Bowfield, Howwood, *Bleachers and Finishers, F.*	Paisley, March 29 ..	Do. do.	9	3 0 0	1 6 0
Joseph Dunn, 21, Greenhead St., Glasgow, *Aërated Water Manufacturer, F.*	Glasgow, January 18..	6. Keeping register of accidents and diseases, or keeping it open to inspection.	1	2 0 0	0 3 3
Robert Smellie, Bellside, Cleland, *Joiner and Sawmiller, F.*	Airdrie, March 20 ..	Do. do.	1	0 5 0	0 4 0
Joseph Dunn, 21, Greenhead St., Glasgow, *Aërated Water Manufacturer, F.*	Glasgow, January 18..	7. Notifying accident	1	1 0 0	0 3 4
Robert Smellie, Bellside, Cleland, *Joiner and Sawmiller, F.*	Airdrie, March 20 ..	Do. do.	1	0 5 0	0 4 0
George Thomson, Orchard Place, Stirling, *Coachbuilder, F.*	Stirling, March 29 ..	Do. do.	1	0 10	0 4 10
J. McDougall & Co., Comely Park St., Glasgow, *Sawmillers, F.*	Glasgow, December 18	Do. do.	1	2 10 0	0 4 11
		B. Posting of Abstracts, Notices, &c.			
Robert Smellie, Bellside, Cleland, *Joiner and Sawmiller, F.*	Airdrie, March 20 ..	1. Failure to affix abstracts and notices.	1	0 5 0	0 4 0
British Canadian Furniture Co., Macalpine St., Glasgow, *Cabinetmakers, W.*	Glasgow, April 20 ..	Do. do.	1	0 10 0	0 4 11
Wm. Kidd, junr., 7, Smith St., Hillhead, Glasgow, *Firewood Manufacturer, F.*	Glasgow, October 18 ..	Do. do.	1	0 5 0	0 5 4
†J. Neil & Son, Ltd., 330, St. George's Road, Glasgow, *Biscuit Manufacturers, F.*	Glasgow, October 22 ..	Do. do.	1	0 10 0	0 2 0
		D. Fencing; Dangerous Machinery, &c.			
Arch. McMillan & Son, Ltd., Dumbarton, *Shipbuilders, F.*	Dumbarton, October 5	1. Failure to fence dangerous machinery.	1	1 1 0	0 9 6
Lawson & Co., West Scotland St., Glasgow, *Sawmillers and Boxmakers, F.*	Glasgow, October 17 ..	Do. do.	1*a*	0 10 0	0 14 2
Anderson & Henderson, Ltd., Kinning Park, Glasgow, *Sawmillers and Boxmakers, F.*	Do.	Do. do.	1*a*	0 10 0	0 17 2
Robt. Burley & Son, Govan, *Sawmillers and Hammer-shaft Manufacturers, F.*	Do.	Do. do.	1*a*	0 10 0	0 19 6

a.—The Sheriff looked upon these cases (not fencing circular saws) as test cases, being the first of the kind in Glasgow, and imposed a nominal fine on this occasion.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXVI.—WEST SCOTLAND DISTRICT—*continued.*

Defendant. (1)	Sheriff Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		D. Fencing; Dangerous Machinery, &c.—*cont.*			
Wm. Joiner, Canal St., Clydebank; *Firewood Merchant, F.*	Dumbarton, October 26	1. Failure to fence dangerous machinery.	1	0 10 6	0 7 5
Watson, Laidlaw & Co., Dundas St., Glasgow, *Engineers, F.*	Glasgow, December 18	Do. do.	1*a*	—	0 10 6
Wm. Hamilton & Co., Belhaven St., Port Glasgow, *Shipbuilders, F.*	Greenock, June 22 ..	2. Penal Compensation in cases where death or injury has resulted from :— Failure to fence machinery.	1*b*	5 0 0	0 11 7
		E. Cleanliness, Ventilation, Overcrowding.			
Joseph Dunn, 21, Greenhead St., Glasgow, *Aerated Water Manufacturer, F.*	Glasgow, January 18..	1. Failure to limewash factory, &c.	1	2 0 0	0 3 3
†James Miller & Son, 62, Bothwell Circus, Glasgow, *Corset Makers, F.*	Glasgow, January 29..	Do. do.	1	3 0 0	0 3 1
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
Robert Young, Kilsyth, *Baker, F.*	Stirling, January 25 ..	Employing young person under 16 without certificate of fitness.	2	1 0 0	1 1 8
†James Miller & Son, 62, Bothwell Circus, Glasgow, *Corset Makers, F.*	Glasgow, January 29..	Do. do.	3	3 0 0	0 9 3
Robert Smellie, Bellside, Cleland, *Joiner and Sawmiller, F.*	Airdrie, March 20 ..	Do. do.	1	0 5 0	0 4 0
†A. B. Grant & Sons, 16, Frederick St., Glasgow, *Clothing Manufacturers, F.*	Glasgow, March 28 ..	Do do.	5	5 0 0	0 9 0
†S. Neill & Co., 128, Ingram St., Glasgow, *Wholesale Tailors and Shirt Makers, F.*	Do.	Do. do.	4	6 0 0	0 9 0
George Thomson, Orchard Place, Stirling, *Coachbuilder, F.*	Stirling, March 29 ..	Do. do.	2	1 0 0	0 9 8
J. & T. Hodge, South Portland St., Glasgow, *Cigarette Manufacturers, F.*	Glasgow, April 20 ..	Do. do.	2	2 0 0	0 6 7
†R. F. & J. Alexander, Ltd., 100, Duke St., Glasgow, *Cotton Thread Manufacturers, F.*	Glasgow, May 15 ..	Do. do	5	5 0 0	0 8 2
James Brown & Son, Great Clyde St., Glasgow, *Printers, F.*	Glasgow, July 25 ..	Do. do.	1	1 0 0	0 9 0
George Harvie, 123, Main St., Wishaw, *Baker, F.*	Hamilton, October 30	Do do.	1	2 0 0	0 14 6
Crichton & Mooney, Parkhead, Glasgow, *Cabinetmakers, F.*	Glasgow, November 9	Do. do.	3	3 0 0	0 10 8
Rogerson & Lawson, Carntyne Road, Glasgow, *Trunk Makers, F.*	Do.	Do. do.	3	3 0 0	0 10 8
J. McDougall & Co., Comely Park St., Glasgow, *Sawmillers, F.*	Glasgow, December 18	Do. do.	1	1 10 0	0 4 11
		R. Employment of Young Persons at Illegal Times.			
United Turkey Red Co., Ltd., Levenbank, Jamestown, *Calico Printers, F.*	Dumbarton, January 19.	1. Before or after legal hours ..	9	10 10 0	0 16 4
James Black & Co., Ltd., Dalmonach, Bonhill, *Calico Printers, F.*	Do.	Do. do.	3	3 3 0	0 3 9
Shanks, Anderson & Co., Polmadie, Glasgow, *Engineers, F.*	Glasgow, June 1 ..	Do. do.	2	2 0 0	0 10 8
Hutson & Son, Ltd., Lymburn St., Glasgow, *Boiler Makers, F.*	Glasgow, July 5 ..	Do. do.	5	7 10 0	0 10 8

a—Withdrawn on payment of costs, as fencing had been done since the first hearing on November 28.
b—Injured person took proceedings to recover damages for injuries.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXVI.—WEST SCOTLAND DISTRICT—*continued.*

Defendant. (1)	Sheriff Court and Date. (2)	Offence. (3)	Cases (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		R. Employment of Young Persons at Illegal Times—*cont.*			
McDonald, Cuthbert & Co., Ltd., Broomloan Road, Govan, *Match Manufacturers, F.*	Glasgow, July 25 ..	1. Before or after legal hours ..	2	2 0 0	0 4 9
Lees, Anderson & Co., 100, Clyde St., Anderston, Glasgow, *Engineers, F.*	Glasgow, October 18 ..	Do. do.	1	1 0 0	0 9 10
Palmer Brothers, Uddingston, *Bakers, W.* ..	Hamilton, November 20.	Do. do.	1	1 0 0	0 14 2
Jas. Eadie & Sons, Ruthergien, *Steel Tube Manufacturers, F.*	Glasgow, December 18	Do. do.	6	3 0 0	0 11 6
Frederick Braby & Co., Ltd., Petershill Road, Glasgow, *Galvanisers and Tank Makers, F.*	Do.	Do. do.	5	2 10 0	0 10 8
		S. Occupation of Young Persons.			
Shawsrigg Fireclay & Enamelling Co., Ltd., Ayr Road, Larkhall, *Brick Manufacturers, F.*	Hamilton, May 8 ..	1. In prohibited industry	1	1 1 8	0 18 4
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
James Black & Co., Ltd., Dalmonach, Bonhill, *Calico Printers, F.*	Dumbarton, January 19.	1. Before or after legal hours ..	16	10 0 0	0 18 10
Stewart & Hornell, Wishaw, *Drapers, W.* ..	Hamilton, May 1 ..	Do. do.	1	1 0 0	0 16 0
Jebb Bros., Govan St., Glasgow, *Waste Merchants, F.*	Glasgow, May 15 ..	Do. do.	4	3 0 0	0 9 10
McDonald, Cuthbert & Co., Ltd., Broomloan Road, Govan, *Match Manufacturers, F.*	Glasgow, July 25 ..	Do. do.	3	3 0 0	0 6 9
Nathan Elstine, Oxford St., Glasgow, *Tailor, W.*	Glasgow, October 17 ..	Do. do	2a	—	0 13 0
†J. Neil & Son, Ltd., 330, St. George's Road, Glasgow, *Biscuit Manufacturers, F.*	Glasgow, October 22 ..	Do. do.	4	1 10 0	0 7 10
James Pirie, 153, St. Vincent St., Glasgow, *Mantle Maker, W.*	Glasgow, November 28	Do. do.	2	0 10 0	0 9 10
J. Grant & Co., Hamilton St., Greenock, *Drapers, W.*	Greenock, May 11 ..	4. Beyond legal hour on half-holiday.	1	0 10 0	0 9 0
J. Young & Co., Hamilton St., Greenock, *Drapers, W.*	Do.	Do. do.	2	0 10 0	0 9 0
James Daly & Co., Sauchiehall St., Glasgow, *Drapers, W.*	Glasgow, June 22 ..	Do. do.	4	6 0 0	0 9 10
London & Paris Mantle Co., Sauchiehall St., Glasgow, *Dressmakers, W.*	Do.	Do. do.	2	3 0 0	0 9 10
L. Wolifson, 9, Watson St., Glasgow, *Tailor, W.*	Glasgow, July 25 ..	Do. do.	5	7 10 0	0 9 0
Eglinton Cabinet Manufacturing Co., Eglinton Lane, Glasgow, *Cabinetmakers, W.*	Glasgow, June 1 ..	9. At night	2	4 0 0	0 9 10
		V.—DANGEROUS TRADES, &c.			
J. Finlay & Co., Ltd., 311, Dumbarton Road, Glasgow, *Brassfounders, F.*	Glasgow, May 15 ..	1. Failure to observe or affix Special Rules. Brass, &c, Works:— Failure to limewash.	1	4 0 0	0 10 8
†Wm. Hollins & Co., Ltd., Avenue St., Glasgow, *Cotton Manufacturers, F.*	Glasgow, May 15 ..	**XIV.—TRUCK ACTS.**	4b	—	—

a.—Withdrawn on payment of costs.
b.—Admonition.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXVII.—SOUTH-WEST SCOTLAND DISTRICT.

Defendant. (1)	Sheriff Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL.		£ s. d.	£ s. d.
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
Charles Skeoch & Son, Goosehill Works, Stewarton, *Spindle Makers, F.*	Kilmarnock, December 10.	6. Keeping register of accidents and diseases, or keeping it open to inspection.	1	2 0 0	0 5 6
Do. do.	Do.	7. Notifying accident	1	1 0 0	0 19 6
		V.—DANGEROUS TRADES, &c.			
William Murdoch, 15, College St., Maxwelton, Bottler, employed by Jas. Ewing & Co., Chapel St., Dumfries, *Mineral Water Manufacturers, F.*	Dumfries, September 5	1. Failure to observe or affix Special Rules. Aërated Water Works:— Failure to wear face-guards, masks, veils, or gauntlets.	1	0 10 0	0 12 6

XXXVIII.—SOUTH-EAST SCOTLAND DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
†R. Middlemass & Son, Ltd., Causewayside St., Edinburgh, *Biscuit Manufacturers, F.*	Edinburgh, June 8 ..	3. Keeping register of children and young persons, &c.	1	1 0 0	0 4 0
Annie Gilchrist, 4, Clerk St., Edinburgh, *Dressmaker, W.*	Edinburgh, January 11	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	1	0 5 0	0 2 6
†R. Middlemass & Son, Ltd., Causewayside St., Edinburgh, *Biscuit Manufacturers, F.*	Edinburgh, June 8 ..	Do. do.	2	1 0 0	0 8 0
Johnston Stewart Lamb, 371, High St., Edinburgh, *Dressmaker, W.*	Edinburgh, July 13 ..	Do. do.	3	1 0 0	0 9 0
E. A. Sime, 102, George St., Edinburgh, *Dressmaker, W.*	Edinburgh, November 10.	Do. do.	1	0 10 0	0 2 6
		B. Posting of Abstracts, Notices, &c.			
†Wm. Crawford & Sons, Elbe St., Leith, *Biscuit Manufacturers, F.*	Edinburgh, June 8 ..	1. Failure to affix abstracts and notices.	1	1 0 0	0 3 6
†Mackenzie & Mackenzie, Ltd., Broughton Road, Edinburgh, *Biscuit Manufacturers, F.*	Do.	Do. do.	1	1 0 0	0 3 6
J. M. Manclark, 1, Charlotte St., Leith, *Tailor, W.*	Edinburgh, December 21.	Do. do.	1	0 2 6	0 5 6
Do. do.	Do.	2. Failure to specify on notice the period of employment, meals, &c.	1	0 2 6	0 5 6
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
†Wm. Roberts & Co., Victoria Mill, Galashiels, *Tweed Manufacturers, F.*	Selkirk, March 2 ..	Employing young person under 16 without certificate of fitness.	2	1 0 0	0 10 6
Currie & Co., Ltd., Heriot Hill, Edinburgh, *Firewood Manufacturers, F.*	Edinburgh, May 1 ..	Do. do.	5	—	0 7 6
†Wm. Crawford & Sons, Elbe St., Leith, *Biscuit Manufacturers, F.*	Edinburgh, June 8 ..	Do. do.	4	4 0 0	0 14 6
†R. Middlemass & Son, Ltd., Causewayside St., Edinburgh, *Biscuit Manufacturers, F.*	Do.	Do. do.	3	3 0 0	0 12 6
A. P. Innes & Co., Victoria Road, Hawick, *Hosiery Manufacturers, F.*	Hawick, August 29 ..	Do. do.	1	1 0 0	0 8 6

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXVIII.—SOUTH-EAST SCOTLAND DISTRICT—*continued.*

Defendant. (1)	Sheriff Court and Date. (2)	Offence (3)	Cases. (4)	Penalty (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		B. Employment of Young Persons at Illegal Times.			
P. & R. Sanderson, Tweed Mills, Galashiels, *Woollen Manufacturers, F.*	Selkirk, January 19 ..	1. Before or after legal hours ..	1	0 5 0	0 8 8
†R. Middlemass & Son, Ltd., Causewayside St., Edinburgh, *Biscuit Manufacturers, F.*	Edinburgh, June 8 ..	Do. do.	2	1 10 0	0 8 0
Andrew Levy & Co., Tennant St., Leith, *Sealing Wax Manufacturers, F.*	Edinburgh, August 16	Do. do.	1	—	0 5 3
†James Henderson & Co., Victoria Road, Hawick, *Hosiery Manufacturers, F.*	Hawick, August 29 ..	Do. do.	2	4 0 0	0 6 0
A. P. Innes & Co., Victoria Road, Hawick, *Hosiery Manufacturers, F.*	Hawick, August 29 ..	Do. do.	4	2 0 0	0 4 4
Annie Braid, 13, Oxford St., Edinburgh, *Dressmaker, W.*	Edinburgh, January 23	4. Beyond legal hour on half-holiday.	1	—	0 3 6
E. A. Sime, 102, George St., Edinburgh, *Dressmaker, W.*	Edinburgh, November 10.	8. Beyond legal period without interval for meals.	1	0 10 0	0 2 4
Bathgate Co-operative Society, Bathgate, *Bakers, W.*	Linlithgow, February 28.	9. At night	1	0 10 0	0 12 10
Robert Blair, Lasswade, *Baker, W.*	Edinburgh, May 4 ..	Do. do.	1	0 7 6	0 10 0
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
M. & J. Fairbairn, 7, Stead's Place, Leith, *Feather Dressers and Curlers, W.*	Edinburgh, May 23 ..	1. Before or after legal hours ..	3	3 0 0	0 8 0
Andrew Levy & Co., Tennant St., Leith, *Sealing Wax Manufacturers, F.*	Edinburgh, August 16	Do. do.	1	—	0 5 3
†James Henderson & Co., Victoria Road, Hawick, *Hosiery Manufacturers, F.*	Hawick, August 29 ..	Do do.	1	2 0 0	0 3 0
A. P. Innes & Co., Victoria Road, Hawick, *Hosiery Manufacturers F.*	Hawick, August 29 ..	Do. do.	17	8 0 0	0 4 5
Annie Braid, 13, Oxford St., Edinburgh, *Dressmaker, W.*	Edinburgh, January 23	4. Beyond legal hour on half-holiday.	5	—	0 3 6
Isabella McLagan, 12, Bruntsfield Place, Edinburgh, *Ladies' Outfitter, W.*	Edinburgh, December 19.	Do. do.	2	0 5 0	0 7 6
Annie Gilchrist, 4, Clerk St., Edinburgh, *Dressmaker, W.*	Edinburgh, January 11	8. Beyond legal period without interval for meals.	9	0 10 0	0 4 8
Mary Common, 112, George St., Edinburgh, *Dressmaker, W.*	Edinburgh, June 20 ..	Do. do.	6	0 18 0	0 7 0
E. A. Sime, 102, George St., Edinburgh, *Dressmaker, W.*	Edinburgh, November 10.	Do. do.	5	2 10 0	0 2 4
John Hendry, Abbey St., Edinburgh, *Aërated Water Manufacturer, F.*	Edinburgh, August 16	9. At night	10	2 5 0	0 15 6

XXXIX.—EAST SCOTLAND DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
*James Russell Mackenzie, 145, High St., Arbroath, *Dressmaker, W.*	Arbroath, June 1 ..	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	2	0 2 0	1 0 0
Wallace & Son, Leven, Fife, *Dressmakers, W.*	Cupar, September 18..	Do. do.	1	0 5 0	0 9 0
		B. Posting of Abstracts, Notices, &c.			
Keegan & McKearney, Strathearn, Crieff, *Chemical Manure Manufacturers, F.*	Perth, July 24	1. Failure to affix abstracts and notices.	1	0 7 6	0 10 0

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXIX.—EAST SCOTLAND DISTRICT—*continued.*

Defendant (1)	Sheriff Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		D. Fencing; Dangerous Machinery, &c.			
Keegan & McKearney, Strathearn, Crieff, *Chemical Manure Manufacturers, F.*	Perth, July 24	1. Failure to fence dangerous machinery.	1	0 7 6	0 10 0
		II.—CHILDREN.			
		O. Personation.			
Patrick Keenan, 26, White's Court, Dundee, parent of child employed by Nairn & Co., Balgay Works, Dundee, *Jute Manufacturers, F.*	Dundee, December 3 ..	Connivance at personation of child.	1	0 0 6	0 5 0
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
***Robert Lessells**, Ladysmill, Dunfermline, *Wood Turner, F.*	Dunfermline, July 19	Employing young person under 16 without certificate of fitness.	3	0 4 6	0 10 6
		R. Employment of Young Persons at Illegal Times.			
James Carmichael & Co., Ltd., Ward Foundry, Dundee, *Ironfounders, F.*	Dundee, July 13 ..	1. Before or after legal hours ..	3	0 7 6	0 13 6
Wallace & Son, Leven, Fife, *Dressmakers, W.*	Cupar, September 18	Do. do.	1	0 5 0	0 9 0
***Draffen & Jarvie**, Whitehall St., Dundee, *Dressmakers, W.*	Dundee, October 5 ..	4. Beyond legal hour on half-holiday.	1	0 1 0	0 1 6
		U. Personation.			
William Latto, 29, Blackness Court, Dundee, parent of child employed by Victoria Spinning Co., Scouringburn, Dundee, *Jute Spinners, F.*	Dundee, February 2 ..	Connivance at personation of young person.	1	0 10 0	0 10 0
John Lonie, 10, Walton St., Dundee, parent of child employed by D. W. Wybrants, Dudhope Works, Dundee, *Jute Spinner, F.*	Do.	Do. do.	1	0 10 0	1 0 0
Parents of children employed by Gilroy, Sons & Co., Ltd., Tay Works, Dundee, *Jute Manufacturers, F.*:—					
Phelix Dowdles, 4, West Port, Dundee	Dundee, December 3 ..	Do. do.	1	0 0 6	0 10 0
James Smith, 24, Session St., Dundee	Do.	Do. do.	1	0 0 6	0 10 0
Mary McQueen, 29, Brown St., Dundee	Do.	Do. do.	1	0 0 6	0 10 0
Andrew Welsh, 36, Horse Water Wynd, Dundee.	Do.	Do. do.	1*a*	—	—
James Davidson, 29, Brown St., Dundee	Do.	Do. do.	1	0 0 6	0 10 0

a.—Not proven. Defendant swore he was quite unaware of his child's employment, but admitted his wife knew.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XXXIX.—EAST SCOTLAND DISTRICT—*continued.*

Defendant. (1)	Sheriff Court and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		U. Personation—*cont.*			
Parents of children employed by D. W. Wybrants, Dudhope Works, Dundee, *Jute Manufacturer, F.*:—					
Lissie Moncrieff, or Gibson, 30, Campbell St., Dundee.	Dundee, December 3..	Connivance at personation of young person.	1	0 0 6	0 10 0
Jane Costello, or **Trayner**, 38, Horse Water Wynd, Dundee.	Do.	Do. do.	1	0 0 6	0 10 0
John Wright, Urquhart St., Dundee, parent of child employed by A. P. Mathewson, Grove Mills, Dundee, *Jute Manufacturer, F.*	Do.	Do. do.	1	0 0 6	0 10 0
Mary Gibson, or **Cornfoot**, 10, Campbell St., Dundee, parent of child employed by H. Smith & Sons, Polepark Works, Dundee, *Jute Manufacturers, F.*	Do.	Do. do.	1	0 0 6	0 5 0
Robt. Jackson, 15, Watson's Lane, Dundee, parent of child employed by A. Henderson & Sons, Anchor Lane, Dundee, *Jute Manufacturers, F.*	Do.	Do. do.	1	0 0 6	0 5 0
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
*Draffen & Jarvie, Whitehall St., Dundee, *Dressmakers, W.*	Dundee, October 5 ..	1. Before or after legal hours ..	8	0 6 6	0 12 6
Keegan & McKearney, Strathearn, Crieff, *Chemical Manure Manufacturers, F.*	Perth, July 24	2. At night	3	1 0 0	0 9 2
†Henry Reid & Sons, Abbey Garden Works, Dunfermline, *Linen Manufacturers, F.*	Dunfermline, May 18	**XIV.—TRUCK ACTS.**	4*a*	—	—

XL.—NORTH SCOTLAND DISTRICT.

		II.—CHILDREN.			
		L. Employment of Children at Illegal Times.			
Mitchell & Muill, Ltd., Harriet St., Aberdeen *Bakers, F.*	Aberdeen, August 24 ..	8. Otherwise than in morning and afternoon sets or on alternate days.	1	2 2 0	0 1 5
		M. Parental Obligations.			
George Davidson, 59, Baker St., Aberdeen, parent of child employed by Mitchell & Muill, Ltd., Harriet St., Aberdeen, *Bakers, F.*	Aberdeen, August 24 ..	1. Parent allowing child to be illegally employed.	1*b*	—	0 7 0
		III.—YOUNG PERSONS.			
		Q. Fitness, &c.			
Mitchell & Muill, Ltd., Harriet St., Aberdeen, *Bakers, F.*	Aberdeen, August 24 ..	Employing young person under 16 without certificate of fitness.	4	8 8 0	0 5 7

a.—Dismissed.

b.—Owing to defendant's poverty and the fact that this was the first case of the kind in Aberdeen, no penalty was asked for.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XLI.—NORTH IRELAND DISTRICT.

Defendant. (1)	Petty Sessions and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
				£ s. d.	£ s. d.
		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards :—			
John Wilson & Sons, Harryville, Ballymena, *Handkerchief Manufacturers, F.*	Ballymena, April 27 ..	4. Keeping register of overtime, or affixing particulars, or sending notice of same.	1	0 5 0	0 3 0
A. J. Burnett, 43, High St., Portadown, *Milliner, W.*	Portadown, May 28 ..	Do do.	1	1 0 0	0 4 6
Caldwell Henderson, 47, Bow St., Lisburn *Milliner, W.*	Lisburn, May 31 ..	Do. do.	1	0 5 0	0 3 0
Robert Nimmon & Co., Strand Road, Londonderry. *Shirt Makers, F.*	Londonderry (Borough), June 4.	Do. do.	1	0 2 6	0 3 6
Hanna Brothers, Cromac St., Belfast, *Pinafore Manufacturers, F.*	Belfast (Borough), August 31.	Do. do.	2	0 5 0	0 6 6
†James Lamont, George St., Ballymena, Factory Apprentice, employed by Gault Bros., Ballymena, *Flax Weavers, F.*	Ballymena, April 27 ..	11. Forging, &c., certificate, or making false entry in register or document.	1	0 10 0	0 3 0
		B. Posting of Abstracts, Notices, &c.			
Agnes Davison, Station Road, Larne, *Dressmaker, W.*	Larne, February 13 ..	1. Failure to affix abstracts and notices.	1	0 2 6	0 2 6
James Cromie, 19, Market Square, Lisburn, *Dressmaker, W.*	Lisburn, May 31 ..	Do. do.	1	0 5 0	0 4 0
S. T. Alexander, 11, Bridge St., Coleraine, *Milliner, W.*	Coleraine, July 6 ..	Do do.	1a	—	—
H. A. G. Black, Rosemary Lane, Coleraine, *Baker, W.*	Do.	Do. do.	1a	—	—
Burns & McClelland, Waterside, Coleraine, *Milliners, W.*	Do.	Do. do.	1a	—	—
Porter & Co., New Row, Coleraine, *Milliners, W.*	Do.	Do. do.	1a	—	—
		C. Obstruction or Personation of H.M. Inspectors.			
Bessbrook Spinning Co., Ltd., Bessbrook, *Flax Spinners, F.*	Newry, February 14 ..	1. Obstruction	1	0 10 0	0 2 6
		D. Fencing; Dangerous Machinery, &c.			
John Thompson, Little Victoria St., Belfast, *Collar Manufacturer, F.*	Belfast (Borough), November 9.	1. Failure to fence dangerous machinery.	1	0 2 6	0 7 6
		II.—CHILDREN.			
		L. Employment of Children at Illegal Times.			
John Barbour & Co., Whitehouse, Belfast, *Flax Spinners, F.*	White Abbey, February 8.	8. Otherwise than in morning and afternoon sets or on alternate days.	3	0 7 6	0 7 6

a.—Dismissed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XLI.—NORTH IRELAND DISTRICT—*continued.*

Defendant. (1)	Petty Sessions and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS.		£ s. d.	£ s. d.
		Q. Fitness, &c.			
John Moore, Ashfield, Dromore, *Hemstitcher, F.*	Dromore, January 28	Employing young person under 16 without certificate of fitness.	3	0 15 0	0 7 6
W. Merry Le Plastrier & Co., Society St., Londonderry, *Shirt Makers, F.*	Londonderry (Borough), April 9.	Do. do.	2	0 10 0	0 5 0
Dunadry Bleaching Co., Dunadry, *Bleachers, F.*	Templepatrick, April 25.	Do. do.	1	0 2 6	0 2 6
Fenaghy Finishing Co., Fenaghy, Ballymena, *Dyers, &c., F.*	Ballymena, May 25 ..	Do. do.	2	0 5 0	0 0 0
Raphael & Co., Cullybackey Road, Ballymena, *Hemstitchers, F.*	Do.	Do. do.	1	0 2 6	0 3 0
Alex. Brown & Sons, Foyle St., Londonderry, *Engineers, F.*	Londonderry (Borough), June 4.	Do. do.	1	1 1 0	0 2 0
James Hamilton & Co., 28, Linenhall St., Belfast, *Fancy Box Manufacturers, F.*	Belfast (Borough), June 6.	Do. do.	2	0 5 0	0 5 0
Hanna Bros., Cromac St., Belfast, *Pinafore Manufacturers, F.*	Belfast (Borough), August 31.	Do do.	1	0 2 6	0 3 0
Robert Hanna & Sons, Dunminning, Ballymena, *Dyers and Finishers, F.*	Rasharkin, September 25.	Do. do	1	0 1 0	0 3 0
Amelia Street Hemstitching Co., Amelia St., Belfast, *Hemstitchers, F.*	Belfast (Borough), October 19.	Do. do.	1	0 2 6	0 2 0
		R. Employment of Young Persons at Illegal Times.			
J. S. Dennison, Springhill, Lurgan, *Handkerchief Manufacturer, F.*	Lurgan, February 6 ..	1. Before or after legal hours ..	6	1 10 0	0 16 6
Bessbrook Spinning Co., Ltd., Bessbrook, *Flax Spinners, F.*	Newry, February 14 ..	Do. do.	5	0 5 0	0 13 0
Thos. Gibson, Rossville St., Londonderry, *Shirt Maker, W.*	Londonderry (Borough), April 9.	Do. do.	1	0 5 0	0 2 0
John Wilson & Sons, Harryville, Ballymena, *Handkerchief Manufacturers, F.*	Ballymena, April 27 ..	Do. do.	1	0 5 0	0 4 6
*Austin & Co., The Diamond, Londonderry, *Dressmakers, W.*	Londonderry (Borough), June 4.	Do. do.	2	0 2 0	0 5 0
Richard Whiteside & Sons, 2, Market St., Downpatrick, *Dressmakers, W.*	Downpatrick, June 7..	Do. do.	3	0 10 6	0 7 6
J. & M. R. Knipe, Molesworth Road, Cookstown, *Dressmakers, W.*	Cookstown, June 22 ..	Do. do.	1	0 2 6	0 2 0
Gilchrist & Co., 14-16, Ferryquay St., Londonderry, *Milliners, W.*	Londonderry (Borough), June 25.	Do. do.	1	0 1 0	0 2 0
George Anderson, 53, Market St., Lurgan, *Milliner, W.*	Lurgan, July 3	Do. do.	1	0 10 0	0 2 6
H. A. G. Black, Rosemary Lane, Coleraine, *Baker, W.*	Coleraine, July 6 ..	Do. do	1	0 0 6	0 2 6
Simms & Co., High Street, Newtownards, *Dressmakers, W.*	Newtownards, August 9.	Do. do.	4	0 10 0	0 10 0
James Clow & Co., Castle St., Portadown, *Corn Millers, F.*	Portadown, August 13	Do. do.	1	0 2 6	0 2 6
Martha Clarke, New Road, Saintfield, *Dressmaker, W.*	Saintfield, August 21 ..	Do. do.	2a	—	—

a.—One case dismissed, the other withdrawn. Witnesses gave evidence contradictory to the declarations made previously by them.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XLI.—NORTH IRELAND DISTRICT—*continued.*

Defendant. (1)	Petty Sessions and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs (6)
		III.—YOUNG PERSONS —*cont.*		£ s. d.	£ s. d.
		B. Employment of Young Persons at Illegal Times—*cont.*			
Porter & Co., New Row, Coleraine, *Milliners*, *W.*	Coleraine, July 6 ..	3. On same day in factory or workshop and in a shop for a total period exceeding the time permitted for employment in factory or workshop.	1a	—	—
Andrew Todd, Main St., Ballymoney, *Baker*, *F.*	Ballymoney, May 21 ..	4. Beyond legal hour on half-holiday.	1	0 2 6	0 2 6
Jane Patterson, 5, High St., Ballymoney, *Baker*, *W.*	Do.	Do. do.	1	0 2 6	0 2 6
Matilda Cleland, 22, Wellington Place, Belfast, *Dressmaker*, *W.*	Belfast (Borough), June 6.	Do. do.	4	2 0 0	0 10 0
Thomas Hegarty, Butcher St., Londonderry, *Bootmaker*, *W.*	Londonderry (Borough), April 20.	6. At meal times	1	0 5 0	0 2 6
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
Bessbrook Spinning Co., Ltd., Bessbrook, *Flax Spinners*, *F.*	Newry, February 14 ..	1. Before or after legal hours ..	35	1 15 0	4 11 6
Patrick McSwiggan, 26, Carlisle Road, Londonderry, *Milliner*, *W.*	Londonderry (Borough), April 30.	Do. do.	2	0 10 0	0 3 6
Stringer, Ltd., 31, Wellington Place, Belfast, *Ladies' Tailors*, *W.*	Belfast (Borough), May 22.	Do. do.	4	2 0 0	0 10 0
Robert Smyth & Sons, 69, Sandy Row, Belfast, *Pinafore Manufacturers*, *F.*	Do.	Do. do.	4	2 0 0	0 10 0
Robert McCrum & Sons, 18, Linenhall St., Belfast, *Collar Manufacturers*, *F.*	Do.	Do. do	4	2 0 0	0 10 0
John Hosey, 28, Market St., Portadown, *Dressmaker*, *W.*	Portadown, May 26 ..	Do. do.	2	1 0 0	0 5 0
James Fleming & Co., 8, High St., Portadown, *Milliners*, *W.*	Do.	Do. do.	1	1 0 0	0 3 6
James Cromie, 19, Market Square, Lisburn, *Dressmaker*, *W.*	Lisburn, May 31 ..	Do. do.	2	0 10 0	0 6 0
Richardson, Sons, & Owden, Ltd., Glenmore, Lisburn, *Bleachers*, *F.*	Do.	Do. do.	1	1 0 0	0 3 6
*Austin & Co., The Diamond, Londonderry, *Milliners*, *W.*	Londonderry (Borough), June 4.	Do. do.	2	0 10 0	0 5 0
Robertson, Ledlie, Ferguson & Co., Ltd., The Bank Buildings, Belfast, *Furniture Hanging Manufacturers*, *W.*	Belfast (Borough), June 6.	Do. do.	3	1 10 0	0 7 6
Ann E. Donaldson, Cliftonpark Avenue, Belfast, *Dressmaker*, *W.*	Do.	Do. do	1	0 10 0	0 2 6
Murray & Co., Market St., Downpatrick, *Dressmakers*, *W.*	Downpatrick, June 7..	Do. do.	2	0 5 0	0 5 0
Patrick Donnelly, 38, High St., Omagh, *Milliner*, *W.*	Omagh, June 11 ..	Do. do.	1	0 1 0	0 2 6
Thomas Getgood, 38, Railway St., Lisburn, *Dressmaker*, *W.*	Lisburn, June 14 ..	Do. do.	2	0 10 0	0 5 0
J. & M. R. Knipe, Molesworth Road, Cookstown, *Dressmakers*, *W.*	Cookstown, June 22 ..	Do. do.	2	0 5 0	0 5 0
Gilchrist & Co., 14-16, Ferryquay St., Londonderry, *Milliners*, *W.*	Londonderry (Borough), June 28.	Do. do.	9	2 5 0	0 17 0
Menary Bros., 44, Market St., Lurgan, *Milliners*, *W.*	Lurgan, July 3	Do. do.	1	0 10 0	0 2 6
George Anderson, 55, Market St., Lurgan, *Milliner*, *W.*	Do.	Do. do.	1	0 10 0	0 2 6
Owen McCarney, 32, Church Place, Lurgan, *Milliner*, *W.*	Do.	Do. do.	1	0 10 0	0 2 6
Eliza Hamilton, College Square East, Belfast, *Dressmaker*, *W.*	Belfast (Borough), July 5.	Do. do.	1	0 5 0	0 2 6

a.—Dismissed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XLI.—NORTH IRELAND DISTRICT—*continued.*

Defendant. (1)	Petty Sessions and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		IV.—WOMEN—*cont.*		£ s. d.	£ s. d.
		W. Employment of Women at Illegal Times—*cont.*			
S. T. Alexander, 11, Bridge St., Coleraine, *Milliner, W.*	Coleraine, July 6 ..	1. Before or after legal hours ..	1a	—	—
Burns & McClelland, Waterside, Coleraine, *Milliners, W.*	Do.	Do. do.	1a	—	—
Jas. B. Gallagher, 10, Bridge St., Coleraine, *Milliner, W.*	Do.	Do. do.	1a	—	—
Hetty Risk, Derry Road, Strabane, *Dressmaker, W.*	Strabane, July 9 ..	Do. do.	2	0 5 0	0 5 0
John Grant, 40, Bow Street, Lisburn, *Dressmaker, W.*	Lisburn, August 23 ..	Do. do.	2	0 5 0	0 11 0
Duncan & Sons, Ltd., Market Square, Lisburn, *Dressmakers, W.*	Do.	Do. do.	6	0 15 0	0 15 0
Maggie Irwin, William St., Dungannon, *Dressmaker, W.*	Dungannon, August 27.	Do. do.	2	0 2 0	0 3 0
Cogry Flax Spinning Co., Cogry. *Flax Spinners, F.*	Ballyclare, November 15.	Do. do.	4	0 10 0	0 10 0
K. B. Pettipace, 14, Carlisle Road, Londonderry, *Milliner, W.*	Londonderry (Borough), April 30.	3. On same day in factory or workshop and in a shop for a total period exceeding the time permitted for employment in factory or workshop.	1	0 5 0	0 2 6
W. Paul & Sons, Ltd., 46, High St., Portadown, *Milliners, W.*	Portadown, May 28 ..	Do. do.	2	2 0 0	0 5 0
Caldwell Henderson, 47, Bow St., Lisburn, *Milliner, W.*	Lisburn, May 31 ..	Do. do.	1	0 5 0	0 4 0
Harbison & Co., 11, Bishop St., Londonderry, *Milliners, W.*	Londonderry (Borough), June 4.	Do. do.	1	0 1 0	0 2 6
Alexr. Byrne, 10, Butcher St., Londonderry, *Dressmaker, W.*	Do.	Do. do.	1	0 2 6	0 2 6
Kane & Co., 216, Crumlin Road, Belfast, *Milliners, W.*	Belfast (Borough), June 6.	Do do.	1	0 10 0	0 2 6
Menary Bros., 44, Market St., Lurgan, *Milliners, W.*	Lurgan, July 3	Do. do.	1	0 10 0	0 2 6
Newell Bros., The Arcade, Lurgan, *Milliners, W.*	Do.	Do. do.	1	0 10 0	0 2 6
Porter & Co., New Row, Coleraine, *Milliners, W.*	Coleraine, July 6 ..	Do. do.	1a	—	—
Ritchie & Son, 54-56, Bow St., Lisburn, *Milliners, W.*	Lisburn, August 23 ..	Do. do.	1	0 2 6	0 2 6
Matilda Cleland, 22, Wellington Place, Belfast, *Dressmaker, W.*	Belfast (Borough), June 6.	4. Beyond legal hour on half-holiday.	4	2 0 0	0 10 0
Brown & Co., 106, Royal Avenue, Belfast, *Tailors, W.*	Belfast (Borough), May 22.	6. At meal times	3	2 0 0	0 7 0
H. J. Breakey, The Diamond, Monaghan, *Dressmaker, W.*	Monaghan, June 5 ..	11. On statutory holiday	3	0 1 0	0 0 6
James Darrah, North Brook St., Coleraine, *Laundry Occupier, W.*	Coleraine, July 6 ..	Do. do.	4	0 2 0	0 10 0
		V.—DANGEROUS TRADES, &c.			
Patrick Hughes, 34, Castle St., Newry, Wirer, employed by Newry Mineral Water Co., Ltd., Newry, *Mineral Water Manufacturers, F.*	Newry, March 7 ..	1. Failure to observe or affix Special Rules. Aërated Water Works:— Failure to wear face guards, masks, veils, or gauntlets.	1	0 1 0	0 2 6
Peter Breen, 19, Scotch St., Belfast, Wirer, employed by Wheeler & Co., Ltd., Eliza St., Belfast, *Mineral Water Manufacturers, F.*	Belfast (Borough), March 23.	Do. do.	1	0 1 0	0 1 0
Michael Hannaway, 11, Grace St., Belfast, Wirer, employed by Wheeler & Co., Ltd., Eliza St., Belfast, *Mineral Water Manufacturers, F.*	Do.	Do do.	1	0 1 0	0 2 6

a.—Dismissed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XLI.—NORTH IRELAND DISTRICT—*continued.*

Defendant. (1)	Petty Sessions and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		V.—DANGEROUS TRADES, &c.—*cont.*		£ s. d.	£ s. d.
Wirers employed by Cantrell & Cochrane, Victoria Square, Belfast, *Mineral Water Manufacturers, F.*:—					
P. Garland, 18, Belgrade St., Belfast ..	Belfast (Borough), March 23.	1. Failure to observe or affix Special Rules. Aërated Water Works:— Failure to wear face guards, masks, veils, or gauntlets.	1	0 1 0	0 1 0
George Magill, 14, Sydney St., Belfast	Do.	Do. do.	1	0 1 0	0 1 0
H. P. Gray, 2, Hamills Court, Belfast	Do.	Do. do.	1	0 1 0	0 2 6
Hugh McAnally, 33, Galgorm Street, Ballymena, Bottle Tier, employed by Houston Lancashire, Church St., Ballymena, *Mineral Water Manufacturer, F.*	Ballymena, June 8 ..	Do. do.	1	0 1 0	0 2 0
		VI.—INFECTIOUS DISEASE.			
Martha & Jane Porter, 118, Ormeau Road, Belfast, *Dressmakers, W.*	Belfast (Borough), December 21.	Allowing wearing apparel to be made in places where there is infectious disease.	1	4 0 0	1 0 0
		XI.—COTTON CLOTH FACTORIES ACTS AND FLAX SPECIAL RULES.			
†Whiteabbey Spinning Co., Whiteabbey, near Belfast, *Flax and Linen Manufacturers, F.*	Whiteabbey, April 12.	6. Failure to observe or affix Flax Special Rules:— Failure to keep two degrees difference between wet and dry bulb thermometers.	1	0 5 0	0 1 6
Whitehouse Spinning & Weaving Co., Ltd., Whitehouse, Belfast, *Flax Spinners and Weavers, F.*	Whiteabbey, January 11.	Failure to record readings of hygrometers.	2	0 10 0	0 4 6
†Charles Hayes, 21, Columba St., Belfast, Spinning Room Overlooker, employed by Lindsay, Thompson & Co., Prospect Mill, Belfast, *Flax Spinners, F.*	Belfast (Borough), March 23.	Do. do.	1	0 10 0	0 1 6
*†Whitehouse Spinning & Weaving Co., Ltd., Whitehouse, Belfast, *Flax and Linen Manufacturers, F.*	Whiteabbey, April 12.	Failure to provide or use fans in roughing and sorting rooms.	1	0 5 0	0 1 6
*John Sweeney, Junior, Dungloe, Co. Donegal, *Giver out of Knitting.*	Dungloe, March 6 ..	**XIV.—TRUCK ACTS** ..	1a	—	—

XLII.—SOUTH IRELAND DISTRICT.

		I.—GENERAL.			
		A. Keeping Registers, Sending Notices, &c.			
		Failure as regards:—			
Dublin & Liverpool Screw Steam Packet Co., Custom House Quay, Dublin, *Occupiers of Quay, F.*	Dublin (Metropolitan Police Court), January 15.	7. Notifying accident..	1	5 0 0	0 4 0
Geo. Nolan, Johnstown, Waterford, *Sawmiller, F.*	Waterford, May 4 ..	Do. do.	1	0 2 6	0 2 6
		B. Posting of Abstracts, Notices, &c.			
Thomas Hunt, Main St., Roscrea, *Saddler, W.*	Roscrea, May 21 ..	1. Failure to affix abstracts and notices.	1	0 5 0	0 2 3
G. F. de Cain, Mill St., Galway, *Brush Manufacturer, F.*	Galway, July 2 ..	Do. do.	1	0 2 6	0 2 0

a.—Dismissed.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XLII.—SOUTH IRELAND DISTRICT—*continued.*

Defendant. (1)	Petty Sessions and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		I.—GENERAL—*cont.*		£ s. d.	£ s. d.
		D. Fencing; Dangerous Machinery, &c.			
Mallen & Co., 89, Upper Dorset St., Dublin, *Manufacturing Chemists, F.*	Dublin (Metropolitan Police Court), January 30.	1. Failure to fence dangerous machinery.	1	0 10 0	0 2 0
Terence Byrne, Ballykelly, Monasterevan, *Corn Miller, F.*	Monasterevan, February 6.	Do. do.	1	1 0 0	0 1 6
Thos. Carpenter, Cottage Mills, Drogheda, *Corn Miller, F.*	Drogheda, February 19.	Do. do.	1	0 2 6	0 2 6
J. & J. Lonsdale & Co., Ltd., Longford, *Butter Manufacturers, F.*	Longford, February 26.	Do. do.	2	1 0 0	0 3 0
James B. Hearne, Chilcomb, New Ross, *Corn Miller, F.*	New Ross, April 27 ..	Do. do.	1	0 2 6	0 2 0
Wookey & Son, Salmon Leap Mills, Leixlip, *Flock Manufacturers, F.*	Lucan, October 30 ..	Do. do.	1	1 0 0	0 2 6
		K. Cleanliness, Ventilation, Overcrowding.			
O'Brien Bros., Woollen Mills, Douglas, *Woollen Manufacturers, F.*	Douglas, April 23 ..	1. Failure to limewash factory, &c.	1*a*	—	0 1 0
New Grappler Pneumatic Tyre Co., Ltd., Fairview, Strand, Clontarf, *Tyre Manufacturers, F.*	Drumcondra, May 11.	Do. do.	1	2 0 0	0 1 6
Dollard & Co., Wellington Quay, Dublin, *Printers, F.*	Dublin (Metropolitan Police Court), May 23.	Do. do.	1	0 1 0	0 1 6
A. & G. Raymond, The Square, Tralee, *Printers, F.*	Tralee, November 12 ..	Do. do.	1	0 2 6	0 1 6
Springmount Co-operative Dairy Society, Ltd., Springmount, *Butter Manufacturers, F.*	Clonmel, December 7.	Do. do.	1	0 1 0	0 2 6
		J. Sanitary Conveniences.			
Kilmanagh Co-operative Dairy & Agricultural Society, Ltd., Kilmanagh, *Butter Manufacturers, F.*	Kilmanagh, November 29.	Neglecting to provide sufficient or suitable sanitary conveniences.	1	1 0 0	0 3 0
Springmount Co-operative Dairy Society, Ltd., Springmount, *Butter Manufacturers, F.*	Clonmel, December 7.	Do do.	1	0 1 0	0 2 6
Garryspillane Dairy Society, Ltd., Garryspillane, *Butter Manufacturers, F.*	Galbally, December 12.	Do. do.	1*b*	—	0 2 0
Catherine Cahill, Mullinahone, *Butter Manufacturer, F.*	Mullinahone, December 14.	Do. do.	1*c*	0 1 0	0 1 0
Drangan Co-operative Dairy Society, Ltd., Drangan, *Butter Manufacturers, F.*	Do.	Do. do.	1*c*	0 1 0	0 1 0
		II.—CHILDREN.			
		K. Age, Fitness, &c., of Children.			
Cork Spinning & Weaving Co., Millfield, Cork, *Flax Spinners and Manufacturers, F.*	Blarney, January 8 ..	2. Without certificate of school attendance.	2	0 10 0	0 9 0
Do. do.	Do.	3. Without certificate of fitness ..	2	0 10 0	0 9 0
		L. Employment of Children at Illegal Times.			
Dublin Glass Bottle Co., Upper Sheriff St., Dublin, *Glass Bottle Manufacturers, F.*	Dublin (Metropolitan Police Court), October 17.	8. Otherwise than in morning and afternoon sets or on alternate days.	1	1 0 0	0 2 0

a.—Order made that the work should be completed within two months.
b.—Order made to have the work completed within seven days.
c.—Work had been done since the summonses were issued.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XLII.—SOUTH IRELAND DISTRICT—*continued.*

Defendant. (1)	Petty Sessions and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS.		£ s. d.	£ s. d.
		Q. Fitness, &c.			
Cork Spinning & Weaving Co., Millfield, Cork, *Flax Spinners and Manufacturers, F.*	Blarney, January 8 ..	Employing young person under 16 without certificate of fitness.	6	1 10 0	1 13 0
Dollard & Co., Wellington Quay, Dublin, *Printers, F.*	Dublin (Metropolitan Police Court), May 23.	Do. do.	5a	0 2 0	0 6 0
G. F. de Cain, Mill St., Galway, *Brush Manufacturer, F.*	Galway, July 2 ..	Do. do.	1	0 2 6	0 2 0
*Irish Plating & Enamelling Co., Ltd., 179, Great Brunswick Street, Dublin, *Enamellers, F.*	Dublin (Metropolitan Police Court), July 27.	Do do.	1	1 0 0	0 3 0
Dublin Glass Bottle Co., Upper Sheriff St., Dublin, *Glass Bottle Manufacturers, F.*	Dublin (Metropolitan Police Court), October 17.	Do. do.	4	4 0 0	0 15 6
P. & H. Egan, Ltd., Church St., Tullamore, *Aërated Water Manufacturers, F.*	Tullamore, November 3.	Do. do.	3	3 0 0	0 7 6
Haden & Co., Maylor St., Cork, *Aërated Water Manufacturers, F.*	Cork, December 5 ..	Do. do.	3	0 15 0	0 7 6
		2. Employment of Young Persons at Illegal Times.			
Hanna Lawlor, 118, Rock St., Tralee, *Dressmaker, W.*	Tralee, January 15 ..	1. Before or after legal hours ..	1	0 0 6	0 2 6
Patrick O'Shea, East End, Cahirciveen, *Tailor, W.*	Cahirciveen, March 31.	Do. do.	2	0 5 0	0 2 0
Flynn & Co., George St., Cork, *Letterpress Printers, F.*	Cork, April 20	Do do.	2	0 10 0	0 5 0
Thomas McEvoy, 7, Henry St., Dublin, *Milliner, W.*	Dublin (Metropolitan Police Court), May 2	Do. do.	2	0 2 0	0 6 0
Edward Deevy & Co., Michael St., Waterford, *Tailors, W.*	Waterford, June 29 ..	Do. do.	1	0 0 6	0 3 0
Dowdall Bros., Grattan St., Cork, *Butter Blenders, F.*	Cork, July 20	Do. do.	1	0 2 6	0 2 6
Williams & Woods, Loftus Lane, Dublin, *Jam Manufacturers, F.*	Dublin (Metropolitan Police Court), August 7.	Do. do	5	0 15 0	0 15 0
John Fitzgerald, Main St., Castlerea, *Dressmaker, W.*	Castlerea, August 11 ..	Do. do.	4	0 4 0	0 8 0
Isabella Vallely, 126, George St., Limerick, *Dressmaker, W.*	Limerick, September 28.	Do. do	1	0 1 0	0 2 6
Julia Nagle, 8, Moore St., Kilrush, *Dressmaker, W.*	Kilrush, October 1 ..	Do. do.	2	0 5 0	0 5 0
Maria Mahony, Moore St., Kilrush, *Dressmaker, W.*	Do.	Do. do.	1	0 2 6	0 2 6
Margaret Daly, 4, Talbot St., Dublin, *Dressmaker, W.*	Dublin (Metropolitan Police Court), October 17.	Do. do.	1	0 10 0	0 3 0
Victoria Paper Co., Killeen, Inchicore, Dublin, *Paper Manufacturers, F.*	Lucan, October 30 ..	Do do	3	0 15 0	0 10 6
William Byrne, 101, Lower Georges St., Kingstown, *Bootmaker, W.*	Kingstown, November 1.	Do. do.	1	0 10 0	0 3 0
P. C. D. Warren, Old Kilmainham, Dublin, *Printer, F.*	Dublin (Metropolitan Police Court), November 2.	Do. do.	2	2 0 0	0 6 0

a.—One case dismissed; two cases withdrawn, as the girls' statements as to their ages were incorrect.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XLII.—SOUTH IRELAND DISTRICT—*continued.*

Defendant. (1)	Petty Sessions and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		III.—YOUNG PERSONS—*cont.*		£ s. d.	£ s. d.
		E. Employment of Young Persons at Illegal Times—*cont.*			
*Cork Spinning & Weaving Co., Millfield, Cork, *Flax Spinners and Manufacturers, F.*	Riverstown. December 4.	1. Before or after legal hours ..	1	0 14 3	0 4 6
Alice Crowley, Priory St., New Ross, *Dressmaker, W.*	New Ross, December 21.	Do. do.	1	0 2 6	0 2 6
J. Mahony, 36 & 37, Cook St., Cork, *Letterpress Printer, F.*	Cork, January 9 ..	4. Beyond legal hour on half-holiday.	4	2 0 0	0 10 0
John Hunt, Church St., Athlone, *Milliner, W.*	Athlone, April 24 ..	Do. do.	1	0 1 0	0 2 6
Thomas Hunt, Main St., Roscrea, *Saddler, W.*	Roscrea, May 21 ..	Do. do.	1	0 5 0	0 2 3
Patrick Crowley, Castle St., Macroom, *Tailor, W.*	Macroom, June 27 ..	Do. do.	2	0 2 0	0 6 0
La Maison Claire, 4, Grafton St., Dublin, *Dressmaker, W.*	Dublin (Metropolitan Police Court), July 6.	Do. do.	4	1 0 0	0 12 0
Isabella Vallely, 126, George St., Limerick, *Dressmaker, W.*	Limerick, September 28.	8. Beyond legal period without interval for meals.	1	0 1 0	0 1 6
		IV.—WOMEN.			
		W. Employment of Women at Illegal Times.			
Hanna Lawlor, 118, Rock St., Tralee, *Dressmaker, W.*	Tralee, January 15 ..	1. Before or after legal hours ..	5	0 2 6	0 12 6
Thomas McEvoy, 7, Henry St., Dublin, *Milliner, W.*	Dublin (Metropolitan Police Court), May 2.	Do. do.	1	0 1 0	0 3 0
Nora Fleming, 74, Patrick St., Cork, *Dressmaker, W.*	Cork, June 23	Do. do.	6	0 6 0	1 1 0
Anne Davies, 119, Patrick St., Cork, *Dressmaker, W.*	Do.	Do. do.	3	0 3 0	0 10 6
Ellen Walsh, 119, Patrick St., Cork, *Dressmaker, W.*	Do.	Do. do.	2	0 2 0	0 7 0
Helena Cashman, 76, Patrick St., Cork, *Dressmaker, W.*	Do.	Do. do.	2	0 2 0	0 7 0
Dowdall Bros., Grattan St., Cork, *Butter Blenders, F.*	Cork, July 20	Do. do.	7	0 17 6	0 17 6
George Holland & Co., Cork, *Butter Blenders, F.*	Do.	Do. do.	5	0 12 6	0 12 6
R. Clear & Sons, Keefe St., Cork, *Butter Blenders, F.*	Do.	Do. do.	11a	—	1 7 6
Williams & Woods, Loftus Lane, Dublin, *Jam Manufacturers, F.*	Dublin (Metropolitan Police Court), August 7.	Do. do.	1	0 3 0	0 3 0
Harriet Toomey, 3, Upper Sackville St., Dublin, *Dressmaker, W.*	Do.	Do. do.	3	0 0 3	0 0 0
John Fitzgerald, Main St., Castlerea, *Dressmaker, W.*	Castlerea, August 11 ..	Do. do.	3	0 3 0	0 0 0
Harriet McMillan, 18, Clare St., Dublin, *Dressmaker, W.*	Dublin (Metropolitan Police Court), August 24.	Do. do.	5	0 12 6	0 15 0
Isabella Vallely, 126, George St., Limerick, *Dressmaker, W.*	Limerick, September 28.	Do. do.	2	0 2 0	0 5 0
J. H. Webb & Co., 1, Capel St., Dublin, *Tailors, W.*	Dublin (Metropolitan Police Court), October 17.	Do. do.	2	2 0 0	0 6 0
Margaret Daly, 4, Talbot St., Dublin, *Dressmaker, W.*	Do.	Do do.	1	0 10 0	0 3 0

a.—Withdrawn on payment of costs.

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TABLE 26.—Prosecutions in 1900 in Detail—*continued.*

(*For General Notes* see *p.* 570.)

XLII.—SOUTH IRELAND DISTRICT—*continued.*

Defendant. (1)	Petty Sessions and Date. (2)	Offence. (3)	Cases. (4)	Penalty. (5)	Costs. (6)
		IV.—WOMEN—*cont.*		£ s. d.	£ s. d.
		W. Employment of Women at Illegal Times—*cont.*			
Victoria Paper Co., Killeen, Inchicore, Dublin, *Paper Manufacturers, F.*	Lucan, October 30 ..	1. Before or after legal hours ..	1	0 5 0	0 5 6
*Cork Spinning & Weaving Co., Millfield, Cork, *Flax Spinners and Manufacturers, F.*	Riverstown, December 4.	Do. do.	6	4 5 0	1 7 6
*Dowdall Bros., Grattan St., Cork, *Butter Merchants, F.*	Cork, December 5 ..	Do. do.	4	4 0 0	0 16 0
Alice Crowley, Priory St., New Ross, *Dressmaker, W.*	New Ross, December 21	Do. do.	1	0 2 6	0 2 6
Hannah Ryland, Lower Cork St., Mitchelstown, *Dressmaker, W.*	Mitchelstown, January 12.	4. Beyond legal hour on half-holiday.	1	0 2 6	0 2 6
Bridget McNamara, Robert St., Mitchelstown, *Dressmaker, W.*	Do.	Do. do.	1	0 2 6	0 2 6
Elizabeth McNamara, 37, Grafton St., Dublin, *Dressmaker, W.*	Dublin (Metropolitan Police Court), March 2.	Do. do.	2	0 10 0	0 6 0
Jane Gavagan, 3, Molesworth St., Dublin, *Dressmaker, W.*	Do.	Do. do.	1	0 10 0	0 3 0
Mary Coyle, 13, Suffolk St., Dublin, *Dressmaker, W.*	Dublin (Metropolitan Police Court), August 24.	6. At meal times	3	0 7 6	0 9 0
Isabella Vallely, 126, George St., Limerick, *Dressmaker, W.*	Limerick, September 28.	8. Beyond legal period without interval for meals.	2	0 2 0	0 3 0
		V.—DANGEROUS TRADES, &c.			
Mich. McCabe, Bottler, employed by Twinem Bros., Dublin, *Aërated Water Manufacturers, F.*	Dublin (Metropolitan Police Court), March 2.	1. Failure to observe or affix Special Rules. Aërated Water Works:— Failure to wear face-guards, masks, veils, or gauntlets.	1	0 5 0	0 1 6
Ellen Heffernan, Wirer, employed by Kiloh & Co., Patrick St., Cork, *Aërated Water Manufacturers, F.*	Cork, August 23 ..	Do. do.	1	0 5 0	0 1 6
Wm. O'Brien, Wirer, employed by Kiloh & Co., Patrick St., Cork, *Aërated Water Manufacturers, F.*	Do.	Do. do.	1	0 5 0	0 1 6
		VII.—LAUNDRIES.			
Patrick Callan, Roseberry Laundry, Newbridge, *Laundry Occupier, F.*	Newbridge, August 2.	1. Neglecting to provide, maintain, or use fans or other proper means for regulating temperature in ironing room, or for carrying away steam in wash-house.	1*a*	0 5 0	0 1 6
Do. do.	Do.	3. Neglecting to keep floors in good condition or properly drained.	1*a*	0 5 0	0 1 6

a.—Bench also made an order that the laundry should be brought into conformity with the Act within one month.

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OF THE

CHIEF INSPECTOR

OF

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REPORT

TO HIS MAJESTY'S PRINCIPAL SECRETARY OF STATE FOR THE HOME DEPARTMENT

ON

The Work of the Government Laboratory on the Question of the Employment of Lead Compounds in Pottery,

BY

PROFESSOR T. E. THORPE, C.B., LL.D., F.R.S.,

PRINCIPAL OF THE GOVERNMENT LABORATORY.

Presented to both Houses of Parliament by Command of His Majesty.

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TABLE OF CONTENTS.

No.	——	Page.
I.	Consideration of proposed Special Rules I. and II.	3
II.	On the relation between the composition of lead fritts and the solubility of the lead which they contain.	23
III.	On the influence of grinding upon the solubility of the lead in lead fritts.	33

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REPORT

TO HIS MAJESTY'S PRINCIPAL SECRETARY OF STATE FOR THE HOME DEPARTMENT

ON

The Work of the Government Laboratory on the Question of the Employment of Lead Compounds in Pottery,

BY

PROFESSOR T. E. THORPE, C.B., LL.D., F.R.S.,

PRINCIPAL OF THE GOVERNMENT LABORATORY.

I.

Consideration of proposed Special Rules I. and II.

GOVERNMENT LABORATORY,
CLEMENT'S INN PASSAGE,
STRAND, LONDON, W.C.,
May, 1901.

SIR,

I HAVE the honour to submit a Report summarising the work of the Government Laboratory in connection with the inquiry instituted in 1898 by the Secretary of State on the Employment of Compounds of Lead in the Manufacture of Pottery, in continuation of the Report by Dr. Oliver and myself in 1899 (C. 9207) and of my Report on the Use of Lead in the Manufacture of Pottery (Cd. 527, 1901).

The present Report embodies chemical evidence which I have to offer in connection with Rules I. and II. of the proposed Amended Special Rules. It is prefaced by an explanation of certain technical terms employed, and includes a statement showing the relation of the present inquiry to that of 1893.

Glaze-constituents.—On analysis a white glaze is found to consist, or may be represented as consisting, of the following oxides :— Explanation of certain Technical Terms used.

	—	Chemical formula.
	Silica	SiO_2
	Lead oxide	PbO
	Alumina...	Al_2O_3
	Lime	CaO
Alkalis	Sodium oxide	Na_2O
Alkalis	Potassium oxide	K_2O
	Boric oxide	B_2O_3

with small quantities of other metallic oxides, *e.g.*, oxide of iron, manganese, cobalt, and magnesium.

Coloured glazes contain, in addition to the above, various colorific metallic oxides, *e.g.*, chromic oxide, cobalt oxide, oxides of copper, antimony, &c., &c.

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The glaze is not a mere mixture of the above oxides. Several of them may be already chemically combined in the ingredients used to prepare the glaze.

Fritt.—This term denotes a material of which the constituents have been fluxed together by heating. The result of the operation is that the constituents combine to form a more or less vitrified mass, not necessarily homogeneous. The vitrified mass or "fritt" is, of course, powdered before being used.

In the main, two kinds of fritts are recognised: "borax fritts" and "lead fritts." It is chiefly with the latter that we have to deal.

"Raw Lead."

"Raw" lead comprises red lead, white lead, and litharge.

The lead oxide shown above as a constituent of glaze may be introduced as "raw" lead, *i.e.*, by simply commingling red lead or white lead, or litharge, with the other ingredients, without previous "fritting." In this form it is soluble in dilute acids, and therefore poisonous.

"Fritted Lead," "Lead fritt," or "Lead silicate."

If, however, the "raw" lead, instead of being merely mixed with the rest of the glaze-materials, is fused or fluxed with a part or the whole of the silica, or of the silica and the other materials, it is converted into "fritted lead," *i.e.*, into a silicate or boro-silicate of lead.

But fritted lead is not all of the same kind. Depending upon the relative proportions of materials taken, the fritt may be either easily soluble in dilute acids, and therefore but little less poisonous than "raw" lead, or it may be nearly insoluble in such acids, and hence comparatively innocuous.

It is to ensure the use of such insoluble fritts that the efforts of the Home Office are now directed. The intent of Rule I. is to ensure that, in the first place, all the lead used in the processes indicated shall be fritted, since even the more soluble kinds of fritted lead have some small advantages over "raw" lead. (Report, 1899, p. 10.)

The purpose of Rule II. is to ensure that the lead, in addition to being merely fritted, shall be fritted so as to produce a fritt which is practically insoluble in dilute acids. This is done by properly apportioning the lead with the other materials.

In 1893 a Departmental Committee was appointed by the Home Secretary to inquire into the subject of lead poisoning. The Committee found that the evil was extensively prevalent, and considered the possibility of mitigating it by substituting "fritted" lead for "raw" lead. A certain number of experiments to this end were made, and indications were obtained of the directions in which further chemical work and practical tests were required.

These suggestions were published in the report issued by the Committee in 1894. But, though the wide spread existence of plumbism was admitted, little real effort seems to have been made by manufacturers to develope the means of mitigation indicated by the Report. "Very little of an effective character had been even attempted" down to 1898; "there had been little or no improvement during this period of five years." (Report, 1899, p. 6.)

In 1898 a further inquiry was instituted by the Home Secretary. The results are published in the "Report on Lead Compounds in Pottery," 1899. Since the publication of this Report a large number of further experiments have been made upon lead fritts, and upon glazes containing their lead in the form of lead fritt. Some of the results thus obtained are published in Parliamentary Paper, Cd. 527, 1901. (Reports on the use of lead in manufacture of Pottery.)

Summarising the outcome of the work done and knowledge obtained since the commencement of the enquiry in 1898, so far as it bears upon Rule I. (use of fritted lead), and upon Rule II. (use of fritted lead having a certain degree of insolubility), the conclusions are:—

(1.) That fritted lead can be substituted for "raw" lead.

(2.) That various kinds of fritted lead exist. Lead fritts may be slightly, moderately, or entirely soluble in dilute acids, so far as the lead is concerned. These are progressively more harmful in their toxic action.

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(3.) That whether a lead fritt is slightly, moderately, or entirely soluble depends upon its chemical composition.

(4.) That the conditions—the facts as to chemical composition—determining the solubility of the lead are now known, and are accessible to manufacturers.

(5.) That these conditions show a considerable latitude to be possible in the proportions of the ingredients composing sparingly soluble fritts. Thus the amount of lead oxide may vary from 15 to 55 per cent., or more, without any necessary increase in the solubility of the lead. The same principle holds for the other oxides.

The bearing of this circumstance lies in the fact that by varying the proportions of the constituents, especially of the lead, various kinds of sparingly soluble fritts can be prepared, having different degrees of fusibility, expansibility, refractivity, and general adaptability to the "body" of the ware.

(6.) That glazes made with such sparingly soluble fritts are in actual use on the Continent, and in those works where these have been adopted plumbism has practically or entirely disappeared.

(7.) That a number of such slightly soluble lead fritts, and a number of glazes made with similar fritts, have been produced during the past eighteen months by English manufacturers, and are in actual use by them. Some of these are known to have been made on a commercial scale, and the results with the ware to be satisfactory.

(8.) That, irrespective of its solubility, the actual amount of lead hitherto used in china and eathenware glazes has often been much in excess of what is necessary.

The practical lessons derived from the foregoing conclusions are applied in Rules I. and II. of the proposed Special Rules.

Consideration of Rules I. and II.—The principle of Rule I. being accepted by the manufacturers, it is only necessary to consider the effect of the proposed amendment.

Rule I.—The manufacturers' proposed amplification of Rule I., by the addition of the words "*with some siliceous substance*" after "fritted," is not sufficiently precise, especially in view of the possibility that the stringency of Rule II. as regards the standard may be relaxed so far as regards coloured glazes.

The words "some siliceous substance" would allow of raw lead being fused with a minimum or even a merely nominal quantity of silica. It might be contended that this was fritted lead in conformity with the Rules, although when ground for use it might be wholly soluble as regards lead, and might, in fact, be scarcely distinguishable from fused litharge.

This would leave the matter in a worse position for practical or administrative purposes than if Rule I. were left as it stands, since it would imply that the point had been considered, and an inadequate definition accepted. The intention of Rule I. is admittedly to prevent the use of "raw" lead. The insertion of words which would allow the use of substances practically similar to raw lead is a contravention of the spirit and purpose of the Rule.

Either the Rule should stand as it is, or a more complete definition than that proposed by the manufacturers should be given.

If the Rule stand unaltered, it would perhaps be possible to show in Court that in a given case the substance alleged to be "fritted lead" was only a "colourable imitation" of what is in practice understood to be a lead fritt.

If the definition is to be made more complete, there are three possible methods of doing this :—

(*a.*) By limiting the percentage of lead in the fritt.

(*b.*) By fixing a minimum percentage for the silica.

(*c.*) By a combination of (*a.*) and (*b.*), a maximum for the lead and a minimum for the silica being laid down.

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Any one of these methods could be made the basis for defining a *bona fide* lead fritt as distinct from a substance whose fritt characters were merely nominal. But neither (*a*) nor (*b*) could be so worded as to preclude the use of fritts in which the lead was practically all soluble, and which would therefore be but slightly preferable to raw lead.

By the method (*c*) a fairly satisfactory definition of fritted lead can be formulated. It is as follows :—

> "By fritted lead is to be understood the product obtained by fluxing together a compound of lead with silica or silicates, and with or without borates or other substances so as to obtain a combination in which the lead, calculated as monoxide, shall not exceed sixty per cent., and in which the percentage amount of silica shall not be less than sixty *minus* two-fifths of the percentage amount of lead oxide actually present."

This provision, if it could be enforced, would in the large majority of cases secure that the fritt should be of moderate or low solubility.

If no standard of solubility were fixed, a definition on the principle (*c*) would be the only method of excluding from the glaze tub fritted lead of so soluble a character as to be but little less poisonous than "raw" lead. Hence, if there were no provision such as is contained in Rule II., this definition should be inserted in Rule I. Otherwise Rule I. should remain as it now is.

All regulations, however, which depend upon a definition of "fritted lead" involving a knowledge of the composition of the fritt must possess one grave disadvantage. To enforce the rule it is necessary to examine the fritt. But after the fritt has been ground up with the other materials of the glaze it is practically impossible to separate it again. Hence any regulation founded upon the definition (*c*), or on any other of like principle, could only be carried out when it was possible to obtain the fritt before grinding. In many cases, perhaps in most, this would not be feasible.

Necessity for standard solubility.

This consideration, together with the fact that "fritted lead" is a loose term covering lead fritts of all degrees of solubility, leads to the following conclusion :—

Assuming that the lead is fritted, as required by Rule I., then this Rule must be given either with or without a definition of what constitutes "fritted lead." If with a definition, then, unless a standard of solubility is adopted, the definition to be effective in excluding highly soluble fritts must involve a knowledge of the composition of the fritt, and as just shown, the Rule would be difficult of enforcement. If without a definition, the term "fritted lead" would certainly include highly soluble fritts.

Hence, if highly soluble lead compounds are to be excluded—and this is the only reason for the abolition of "raw" lead, to which manufacturers agree—it is imperative that a standard of solubility be fixed. This leads to the consideration of Rule II.

Rule II.—In the first place it may be pointed out that for manufacturers to object "*in toto*" to this Rule, after having accepted the principle of fritting the lead laid down by Rule I., it somewhat illogical.

The objection to "raw" lead is its high solubility. The object of fritting the lead is to make it less soluble. But mere fritting does not necessarily ensure this. Some method of testing whether the fritting has been efficacious in securing the object desired is required. Some standard must, therefore, be set up, and this is provided by Rule II., whether the particular limit proposed is accepted or not. Hence, to accept Rule I. and object "*in toto*" to Rule II. is rather like saying, "We agree that it is desirable to reduce the solubility of our lead ; but we object to any means being taken to ascertain whether the solubility has been reduced or not."

Foundations of Rule II.—The particular conditions laid down in Rule II. for testing glazes were based partly on the results of a study of Continental fritts which were in actual use, and which were proved to be of a relatively low order of solubility, and partly upon the circumstances necessary to suit the practical requirements of inspection.

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The details of the study of Continental fritts, and the comparison of these with various English fritts, are set forth in the annexed paper, on "The relation between the composition of lead fritts and the solubility of the lead which they contain" (p. 20). A résumé of the chief results has been given in outline in the conclusions (1 to 6) on pp. 4 and 5.

Fritted lead on the Continent.

On pp. 16 to 26 of the 1899 Report on Lead Compounds in Pottery, the conditions of working at six large (and two smaller) Continental potteries are described. The essential points of the description for the present purpose may be thus summarised :—

Factory.	No. of Workers Employed.	Ware Made.	Kind of Lead used.	Effect as regards Plumbism.
Boch Freres, La Louvière.	950 to 1,000	Earthenware and wall tiles.	Mainly fritted; a small quantity of raw.	No cases during last 20 years.
P. Regout et Cie, Maastricht.	1,800	Earthenware	Raw ...	Plumbism exists: "men more frequently affected than women."
La Société Céramique, Maastricht.	1,300	Domestic ware and tiles.	Practically all fritted.	Very good reputation as regards freedom from Plumbism. Only one case of "dropped-wrist" in 25 years.
Aluminia Works, Copenhagen.	250	Domestic ware.	Half fritted, half raw.	No cases.
Rörstrand Works, Stockholm.	1,000	Earthenware and porcelain.	Fritted since '93. Raw previous to '93.	No cases since '93; 29 cases in previous eight years.
"Arabia" Works, Helsingfors.	375	Earthenware and china.	Fritted since 1893.	No cases since 1890.
Villeroy and Boch, Dresden.	1,500	Earthenware	Fritted for the last 24 years.	No case during the last 24 years.

Thus in the works where fritted lead is used plumbism has largely or entirely disappeared.

Sparingly soluble Continental fritts.

The question then arises, What kind of fritted lead is used to obtain this result?

Specimens of the fritts in actual use at the factories of Boch Frères (Belgium) and La Société Céramique were obtained, and also a specimen of new fritt at that time being tried at the Rörstrand Works. The solubility of the lead in these fritts when finely ground and treated with dilute acid as laid down in Rule II. was determined, with the following results:

Fritt.	Lead Oxide present.	Lead Oxide Dissolved.	Solubility calculated for Glass containing		
			10 % PbO.	15 % PbO.	20 % PbO.
Boch Frères, Belgium	22·4	0·7	0·3	0·5	0·6
La Société Céramique	19·0	1·2	0·6	0·9	—
Rörstrand	44·1	2·1	0·5	0·7	1·0

Thus, if any one of these fritts were used to furnish the lead for a glaze containing 15 per cent. of lead oxide, the solubility of that glaze determined as per Rule II. would be less than 1 per cent. If either the first or third were

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used in the same way for a glaze containing as much as 20 per cent. of lead oxide, the solubility would still be not greater than 1 per cent. The second fritt contains too little lead to furnish 20 per cent. of lead oxide.

Although these three fritts show that even a 1 per cent. limit is practicable, and that this standard is actually reached (though not enforced) on the Continent, it was thought desirable to allow a certain margin for possible accidental deviations. The limit of 1 per cent. was, therefore, doubled, and a standard of 2 per cent. suggested as a criterion of safety whereby glazes might be judged.

At Rörstrand, between 1893 and 1898, the fritt used was a bi-silicate of lead. No specimens of the bi-silicate actually used was examined, because, as the Managing Director of the Rörstrand Works explained, he was not wholly satisfied with the amount of security which the bi-silicate offered, in spite of the fact that he had had no cases of plumbism for some years. The bi-silicate was more readily attacked by acids than the complex silicates (of which the three fritts above described are examples), and he was contemplating replacing it by one of these for the sake of greater security.

But even using the bi-silicate, the glaze employed at the Rörstrand Works, shows a solubility conforming to the standard of 2 per cent.

The solubility as regards lead of a sample of "commercial di-silicate" was ascertained by Messrs. Jackson and Rich to be 8·24 per cent. (Manchester Memoirs, xlv. (1900), No. 2, pp. 10 and 14.) Bi-silicate contains 65 per cent. of lead oxide. If this were used to supply the lead in the Rörstrand glaze, which contains 14 per cent. (l. c., p. 21), the solubility of these would be 1·8 per cent.

The Manufacturers' Joint Committee, in their "Notes on the Manufacturers' Amendments," issued 10th September, 1900, say, with reference to Rule II. :—

> "It must be borne in mind that on the Continent some of the largest manufacturers have been in the habit of using such compounds as lead bi-silicate, according to Dr. Thorpe, with absolute immunity. It seems to us, therefore, unreasonable that English potters should for a moment be asked to accept a lower standard of solubility."

It will be seen from the foregoing example that the English potter is not being asked to accept a lower standard of solubility than corresponds to the use of bi-silicate in the glaze above referred to.

There remains the case of the Aluminia Works. Here about 8 per cent. of raw lead is mixed with the fritted lead in forming the glaze. But the conditions in these works differ from those generally obtaining in the Staffordshire Potteries. Greater care is shown in matters of cleanliness. Men on night shifts are required to have a bath before leaving the works. The workpeople are given dilute sulphuric acid to drink, in order that any raw lead which they may have swallowed may be rendered insoluble in the stomach. If it can be shown that it is practicable to render the lead insoluble before it gains access to the stomach, it seems irrational to throw upon the workman the obligation of making it so after he has swallowed it, by drinking diluted oil of vitriol.

Results with pottery ware.

As regards the results given on the ware with these glazes of low solubility, it is sufficient to point out that the glazes are actually in use at the large factories mentioned, and have been for years. In addition there is the direct testimony of Mr. Almström, the Director at Rörstrand :—

> "The glaze with fritted lead is in all respects quite as good as glaze with raw lead ; it does not cause crazing ; it applies quite as well to the ware, and requires only a little harder firing."
> (Report, 1899, p. 22.)

Home Office proposals.

The above arguments so far weighed with the Home Office that in December, 1899, the Under Secretary issued a circular letter proposing to embody in Special Rules two regulations :—

(1.) That only glazes in which the lead is fritted should be used in the manufacture of china and earthenware.

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(2.) That after a longer interval, "but still within a measureable time," a standard of safety should be definitely fixed. The standard suggested was a maximum of 2 per cent. of soluble lead, as defined in Rule II.

Manufacturers' attitude towards Home Office proposals.

Proposal (1) had already been agreed to—in fact put forward—by representatives of the manufacturers, after the issue of the 1899 Report on Lead Compounds in Pottery, in which the foregoing facts and conclusions were set out. (Printed statement by Joint Committee, April, 1899; and book by Mr. W. Burton, "The Use of Lead Compounds in Pottery, from the Potters' point of view," 1899).

As regards Proposal 2, the Joint Committee in a letter to the Home Secretary dated 22nd December, 1899, suggested that the settlement of the question should be deferred for a period of two years, in order to have a body of practical information to go upon, derived from the actual working experience of English potters themselves. Sixteen months of this time have now elapsed.

The arguments for delay and re-consideration were thus given in letter of 10th Sept., 1900 :—

(*a.*) English manufacturers were being asked to accept conditions never before employed by any potters in the world.

(*Reply.*—In the sense that there has previously been no *enforcement* of a definite standard, this is no doubt true. But it has already been pointed out that the standard is reached in large works abroad. Whether it has been attained by voluntary effort or by the pressure of general regulations, does not affect the question of practicability).

(*b.*) On the Continent fritted lead in the form of bi-silicate is used with consequent immunity from plumbism. English potters should not be asked to accept a lower limit than corresponds to this fritt.

(*Reply.*—It has already been shown that the standard suggested is not lower than would be given by the use of the bi-silicate in the glaze referred to).

(*c.*) In preparing fritts of low solubility on the large scale certain practical difficulties arise which could not have been anticipated. Mr. Moore and Mr. Burton would be prepared to discuss these with the Home Office and Dr. Thorpe.

(*Reply.*—The difficulties were not specified in the letter : from what has arisen since, the chief points would appear to have been the question of the effects of fineness (i) in applying the glaze to the ware, and (ii) on the solubility of the fritt. Latter is dealt with later on.)

Method of Testing Prescribed in Rule II.

Time.—One hour's shaking at the common temperature with a subsequent hour's settling was found long enough to dissolve the whole of the lead from easily soluble fritts. From sparingly soluble fritts it dissolved nearly, though not quite, as much lead as two hour's shaking. It thus served to discriminate between the two classes of fritts and was a practical working length of time.

Temperature.—The common temperature was chosen as being a more practical temperature for laboratory purposes than that of blood heat, and less liable to variation during experiments. Less lead is no doubt dissolved from slightly soluble fritts than would be dissolved at the blood temperature.

Quantity of Acid.—The quantity "1,000 times its weight" was chosen, (1) in order to ensure that under all circumstances an excess of acid should be present; and (2), in order that the excess should be so great as to prevent any considerable weakening of the acid through the neutralising action of soluble constituents of the glaze.

The necessity for (1) is shown on pp. 34-35 of the 1899 Report. If an excess of acid is not present a fritt which is really highly soluble may appear to contain little or no soluble lead, in consequence of the subsequent withdrawal from solution of the lead which had at first been dissolved.

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Strength of Acid.—The strength of acid adopted for the test is that which is generally taken to be about the average strength of the hydrochloric acid in the gastric juice, this acid being without doubt the active agent in dissolving lead which gains access to the stomach.

Laboratory test not equivalent to action of stomach.

The solubility test of the toxic power of fritts as prescribed in Rule II. is by no means stringent, looked at from the point of view of preventing plumbism. It is certainly but a feeble imitation of the actual digestive process occurring in the stomach. In the laboratory test the fritt is shaken for one hour only, at a temperature of about 60° F. In the ordeal which the fritt would undergo if it gained access to the stomach the solvent action would be prolonged for several hours, and would be exerted at a temperature nearly forty degrees higher.

It is well known that the action of solvents is much intensified by increase of temperature, and this is especially the case with an action which results in the formation of lead chloride which is much more soluble in hot water than in cold. There can be no doubt, therefore, that glazes which, when tested under the standard conditions yield less than 2 per cent. of soluble lead, would show an increased, and possibly a greatly increased, solubility when submitted to a test strictly comparable with the physiological processes occurring in the stomach. If the test is to be a real safeguard against lead poisoning this difference should be borne in mind when appraising the limit as given by the laboratory test.

Possibility of conforming to Rule II, as shewn by results obtained by English manufacturers since the issue of the Home Office proposals in December, 1899.

The evidence falls under the following heads :—

(1.) Examination of fritts and glazes of low solubility.
(2.) Progress shown by manufacturers in obtaining soluble glazes.
(3.) Statements of manufacturers.
(4.) The more general introduction of "leadless" glazes.
(5.) The possibility of diminishing the quantity of lead actually used.

(1.) *Examination of Glazes and Fritts.*

A large number of glazes and fritts has been examined since December, 1899. The following is a summary of the results, showing the numbers examined and the solubilities :—

SUMMARY OF GLAZES REPORTED UP TO APRIL 15TH 1901.

	No. of Samples.
Solubility not greater than 2 per cent.	20
„ greater than 2 per cent. and not greater than 2·5 per cent. ...	4
„ „ „ 2·5 „ „ „ „ 3·0 „ ...	5
„ „ „ 3·0 „ „ „ „ 3·5 „ ...	5
„ „ „ 3·5 „ „ „ „ 4·0 „ ...	6
„ „ „ 4·0 „ „ „ „ 4·5 „ ...	3
„ „ „ 4·5 „ „ „ „ 5·0 „ ...	1
	44
Solubility greater than 5 per cent.	24
Total No.	68

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Thus out of the 44 samples whose solubilities were not greater than 5 per cent. 20 actually conformed to the suggested standard, and 24 practically conformed, since their solubilities were below 2½ per cent.; whilst no fewer than 34 had solubilities not greater than 3½ per cent.

Out of the 24 glazes having a solubility greater than 5 per cent., some were known to be sent, not as attempts to satisfy the 2 per cent. requirement, but simply to ascertain what kind of results the sender's fritted lead was likely to give. Others were admittedly first attempts, and the senders subsequently obtained glazes falling below the 2 per cent. limit.

SUMMARY OF FRITTS REPORTED UP TO 15TH APRIL, 1901.

	Number examined.	
Solubility not greater than 2 per cent.	14	
„ greater than 2 per cent. and not greater than 3 per cent. ...	6	17
„ „ „ 3 „ „ „ „ 4 „ ...	6	
„ „ „ 4 „ „ „ „ 5 „ ...	2	
„ „ „ 5 „ „ „ „ 6 „ ...	3	
	31	
„ „ „ 6 „	12	
Total	43	

Of the 17 fritts whose solubilities fell between 2 and 6 per cent., many were known to contain from 40 to 50 per cent. of lead oxide, or even more. If used—as many were intended to be, and all might be—to furnish the lead in glazes containing even as much as 20 per cent. of lead oxide, the solubility of such glazes would fall below 2 per cent., though that of the fritts themselves might be as high as 5 per cent. For instance :—

Fritt. Laboratory No.	Lead Oxide present.	Solubility of fritt.	Solubility of glaze containing 20 per cent. of lead oxide.
49	36·5	2·3	1·3
73	38·6	2·8	1·5
91	50·5	2·5	1·0
124	57·3	2·6	0·9
165	33·8	2·8	1 6
112	48·0	3·9	1·6
113	48·8	3·1	1·3
123	57·5	3·2	1·1
172	37·5	3·5	1·9
42	59·3	5·1	1·7
238	58·5	4·2	1·4
64	59·9	5·5	1·8

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Thus most of these 17 fritts, and probably all, are to be taken as yielding glazes satisfying the stipulations of Rule II; so that about 31 fritts out of a total of 43 have solubilities sufficiently low to bring the glazes made from them within the suggested limit.

The following table shows more generally the solubility-figures that are given by glazes containing from 10 to 20 per cent. of lead oxide, when this constituent is furnished by a representative series of the foregoing fritts, covering a considerable range as regards lead-content and solubility. It will be seen that the percentage of lead oxide in the fritts ranges from 27 to 60, and the solubility from 0·6 to 5·5 per cent. But the solubility of the glazes falls in all cases below 2 per cent.

SOLUBILITIES OF GLAZES CONTAINING RESPECTIVELY 10, 15, AND 20 PER CENT. OF LEAD OXIDE, CALCULATED FROM THE KNOWN SOLUBILITIES AND LEAD-CONTENTS OF A NUMBER OF THE FOREGOING LEAD FRITTS.

Fritt No.	Manufacturer.	Percentage of lead oxide in fritt.	Solubility of fritt.	Solubility of glaze made from fritt so as to contain :—		
				10 per cent. lead oxide.	15 per cent. lead oxide.	20 per cent. lead oxide.
42	Pilkington's	59·3	5·1	0·9	1·3	1·7
43	„	53·2	2·0	0·4	0·6	0·8
44	„	49·3	1·5	0·3	0·5	0·6
45	„	24·5	0·6	0·2	0·4	0·5
46	„	41·4	0·8	0·2	0·3	0·4
47	„	41·3	0·7	0·2	0·3	0·3
48	Moore Bros.	36·2	1·4	0·4	0·6	0·8
49	„	36·5	2·3	0·6	1·0	1·3
62	Carter & Co.	44·8	2·0	0·4	0 7	0·9
64	Doulton's, Burslem ...	59·9	5·5	0·9	1·4	1·8
73	Ashworth	38·6	2·8	0·7	1·1	1·5
91	Harrison...	50·5	2·5	0·5	0·7	1·0
104	Gibbons, Hinton & Co.	27·0	1·1	0·4	0·6	0·8
110	Pilkington's	47·8	1·3	0·3	0·4	0·5
111	„	50·7	1·6	0·3	0·5	0·6
112	„	48·0	3·9	0·8	1·2	1·6
113	„	48·8	3·1	0·6	1·0	1·3
123	Doulton & Co.	57·5	3·2	0·6	0·8	1·1
124	„	57·3	2·6	0·5	0·7	0·9
165	Craven, Dunhill & Co.	33·8	2·8	0·8	1·2	1·7
172	Gibbons, Hinton & Co.	37·5	3·5	0·9	1·4	1·9
238	Keeling & Walker ...	58·5	4·2	0·7	1·1	1·4

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(2.) *Progress shewn by manufacturers.*

(*a.*) *Collectively.*—Referring to the list of glazes examined, it will be seen that the proportion of highly-soluble glazes to the whole number sent was much smaller in the last three months than in the two previous half-years, and that the improvement has been progressive :—

In the 1st half-year, 13 samples out of 25, or 52 per cent., had solubility greater than 5 per cent.

In the 2nd half-year, 9 samples out of 20, or 45 per cent., had solubility greater than 5 per cent.

In the last quarter, 2 samples out of 22, or 9 per cent., had solubility greater than 5 per cent.

A similar improvement is shown in the summary of fritts examined :—

Up to June 30th, 1900, 9 samples out of 19, or 47 per cent., had solubility greater than 5 per cent.

Since June 30th, 1900, 6 samples out of 24, or 25 per cent., had solubility greater than 5 per cent.

This shows that the proportion of highly-soluble glazes and fritts is becoming smaller as the manufacturers gain greater experience in compounding them. Glazes of moderate and of low solubility constitute by far the larger part of specimens recently analysed. There is no reason to doubt that the same process of improvement will go on ; and that with better knowledge of the conditions governing the production of slightly-soluble fritts, and a clearer recognition of what are the sources of error to be avoided, glazes of moderate solubility (*e.g.*, 3 or 4 per cent.) may be eliminated or rendered quite exceptional.

(*b.*) *Individually.*—The last remarks may be illustrated by some individual examples :—

On February 14th, 1900, Messrs. Johnson Bros., Hanley, first sent two specimens of glaze for examination. The results were 9·3 and 18·1 per cent. On learning this the firm asked if some information might be given them for future guidance in glaze-making. They were referred to certain information and principles which had been published and were readily accessible.

Presumably this sufficed to show them the way out of their difficulty, as the next specimens sent showed solubilities of 3·7 and 2·9 per cent respectively.

On August 20th, 1900, Messrs. Bullers, Hanley, forwarded three specimens of glaze which were found to have solubilities of 19·0, 10·4, and 8·1 per cent. They then made an inquiry similar to that of Messrs. Johnson, and were similarly advised. The samples subsequently sent had the following solubilities :—2·7, 1·4, 3·1, 1·5, 2·8. 1·5, and 1·5 per cent.

Similarly the first specimens sent by the Royal Crown Derby Co. gave results 19·0 and 17·9 per cent. ; later specimens sent by this firm gave 6·8, 1·5, 1·1, and 1·5 per cent.

A good example of progress is shown by Messrs. W. & E. Corn, Longport. Three specimens of glaze have been examined for this firm, the dates and results being :—

August 4th, 1900	14·6	per cent.
September 4th, 1900	2·2	„
October 3rd, 1900	1·5	„

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Other instances of the same tendency are :—

Manufacturer.	Sample received.	Solubility.
Grindley & Co.	January 11th, 1900	9·9
„	February 13th, 1901	1·6
T. Hughes & Son	May 2nd, 1900	7·8
„ „	August 15th, 1900	2·4
Burgess & Leigh	February 14th, 1901	3·4
„ „	April 23rd, 1901	1·6

(3.) *Statements of Manufacturers.*

The following statements are evidence that glazes of a low order of solubility are practicable :—

No.	Date received.	Manufacturer.	Solubility.	Traders' remarks.
1	April 10, 1900	Worcester Royal Porcelain Co.	1·3	Glaze was in the condition as regards fineness *in which we use it* in our manufacture.
59	May 11 „	Hammersley & Son ...	0·8	"A sample of our glaze, No. 365."
63	May 17 „	Carter & Co., Poole ...	0·7	We think there is no doubt whatever that they were in the state in which we *intended to use them. We are now using a very similar fritt*, and would, if you like, send you a sample from the bulk.*
62	„ „ „	„ (fritt) ...	2·0	
75	June 27 „	Cartwright & Edwards	1·7	As sent, were "not in the condition as regards fineness *in which we use them*."
76	„ „ „	„ „	1·5	
77	„ „ „	„ „	0·9	
114	Sept. 4 „	W. & E. Corn... ...	2·2	"Were what we intended using (it) in bulk, and *as we are using it at the present moment*" (12/1/01).
119	Oct 3 „	„ „	1·5	
164	Dec 20 „	Bullers, Ltd.	1·4	"Sample is in the state (of subdivision) *in which we use it* for glazing ware."
172	Jan. 4, 1901	Gibbons, Hinton & Co. (fritt)	3·5	"While it does not reach the proposed standard of 2 per cent. in itself, yet, as *we propose diluting it with an equal quantity of leadless glaze*, it will bring it well within the standard."
223	Feb. 13 „	Grindley & Co. ...	1·6	"We beg to inquire if a bottle of the glaze *actually being used* would be more suitable for your test. In practice the lead fritt we sent you is, of course, ground with other materials."

* In a subsequent communication, with reference to a fritt examined recently and which was found to have a solubility of 1·5 per cent., this firm stated that "the sample was taken from the tub which the glazes were being worked out from"; and further, "this is is the best glaze we have ever had for not crazing."

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No.	Date received.	Manufacturer.	Solubility.	Traders' remarks.
208	Feb. 4 1901	Bullers, Hanley ...	3·1	Sample taken from a charge ground ready for use. "We may say that it would be of no service to us to send you a sample for testing unless we had previously ascertained that it was a satisfactory glaze."
236	„ 22 „	„ „ ...	1·5	
237	„ 25 „	„ „ ...	2·8	
259	March 19 „	„ „ ...	1·5	But, 19/3/01. "None of these glazes sent on and after 20/8/00 are intended for use on earthenware; they are porcelain glazes."
156	Dec. 4, 1900	Dimmock & Co. ...	2·8	"A sample of *our fritted lead glaze.*"
225	Feb. 14, 1901	Burgess & Leigh ...	3·4	"A sample of my glaze *now in use at this pottery.* It is an excellent glaze."
238	„ 25 „	Keeling & Walker (fritt)	4·2	"Is being made and sold on a commercial scale."
3	April 2 „	Salt Bros.	1·0	"Is a sample of the glaze we are now using."

Although several of these glazes have solubilities somewhat greater than 2 per cent., it must be remembered that at least in some cases they were the first determinations of solubility which we had made for the manufacturers in question. The specimen from Messrs. Burgess & Leigh, for instance, which their manager describes as "an excellent glaze," was the first received from that firm.*

The following statements are evidence that in the opinion of experienced English potters white glazes of a low order of solubility are quite practicable :—

EXTRACT FROM LETTER received from Mr. Wm. Burton, F.C.S., Director of Pilkington's Tile and Pottery Co., Clifton Junction.

"You raise the point that five of these fritts will come within the 2 per cent. of solubility mentioned in the Home Office circular. True: but these fritts are not finished glazes, and while from any of these fritts it will, I believe, be quite practicable to make glazes for all ordinary earthenware and china purposes, that will give up probably less than 1 per cent. of their weight of lead oxide, that only solves the easiest part of the problem."

(The other part of the problem, as the context shows, is the application of the standard to *majolica* and *jet and rockingham ware.*)

Mr. Burton, therefore, thinks even a 1 per cent. standard "quite practicable" for ordinary earthenware and china glazes.

EXTRACT FROM LETTER published by Mr. Bernard Moore, St. Mary's Works, Longton. ("Standard," 13th February, 1901, and "Pottery Gazette," March, 1901).

"I may say that I have a considerable knowledge of the subject, for I am a china manufacturer, a managing director of the largest Potters' Milling Association in England, and I am a glaze manufacturer. I was

* Since the above was written a further sample of glaze has been received from Messrs. Burgess & Leigh (23rd April). With regard to this it was stated that "the sample sent is ground to the usual degree of fineness, such as we use daily in our dipping-tub." The solubility of this glaze was found to be 1·6 per cent. Specimens of ware glazed with the glaze in question were also forwarded; they were, as there was no reason to doubt they would be, of unexceptionable appearance.

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also chosen by the manufacturers to assist Mr. Wm. Burton to place their views before the Home Office at the two last Conferences on the Special Rules. At the last of these Conferences, Mr. Burton and myself agreed to recommend manufacturers to accept a maximum standard of 5 per cent. solubility for white and lightly-coloured lead glazes, and we pointed out that, to get this in practice, manufacturers would have to use a glaze *which would not have, as a rule, a greater solubility than* 2 *or* 3 *per cent.* This, I believe, would, with ordinary care, give our workmen complete immunity from lead poisoning."

Thus Messrs. Moore and Burton consider that a maximum standard of 2 or 2 per cent. is, *as a rule*, practicable. It is, therefore, only to meet possible exceptional cases that they desire the higher limit of 5 per cent., and not on account of anything inherently impracticable in a "2 or 3 per cent." standard.

Ware made with glaze conforming to Rule II.—Examples are adduced (1) of table ware stated by an English manufacturer to be produced on the commercial scale, with a fritted lead glaze of 1·5 per cent. solubility containing 18 per cent. of lead oxide; (2) of earthenware and china made by a second English firm with a fritted lead glaze of 1·6 per cent. solubility and containing 16·2 per cent. of lead oxide; and (3) of tiles glazed by a third English manufacturer with a fritted lead glaze having a solubility of 0·7 per cent.

(4) *Diminishing the amount of Lead.*

There is evidence to show that it is possible to diminish the amount of lead usually contained in china and earthenware glazes; thereby, other things being equal, diminishing proportionately the amount of lead dissolved from the glaze by dilute acids.

For example, when it is a question of a glaze containing 22 per cent. of lead oxide showing 4 per cent. of "soluble lead," then if the glaze be made with only one-half the quantity of the same fritt, so as to contain 11 per cent. of lead oxide, the amount of "soluble lead" will also be reduced to one-half, *i.e.*, to 2 per cent. The glaze, which did not originally conform to the 2 per cent. standard, is made to do so by decreasing the (unnecessarily large) amount of lead.

The average quantity of lead oxide in 15 specimens of china and earthenware glazes was found to be about 18 per cent., the highest amount being a little over 22 per cent. (Report, 1899, p. 38.)

That there has been a growing tendency during past years to increase the amount of lead in glazes used for table-ware would seem to be implied in the following statement by Mr. W. Burton in the article "Pottery and Porcelain," in Thorpe's Dictionary of Applied Chemistry, Vol. III., p. 304 (Published in 1893):—

> "During the last 50 years or so many glazes have been introduced both in Continental countries and in England, containing a large proportion of oxide of lead, so as to render the production of a rich brilliant glaze possible without the cost and the difficulties of a high temperature of firing. So overcharged are many of the commoner glazes with lead that they are readily attacked by the acids of food in cooking, and to such an alarming extent has this soft lead glazing grown, that the German Government has recently forbidden the use of a glaze on any article for domestic use which will not resist the action of strong boiling acetic acid."

The German law here referred to is that of June 25th, 1887 (Reichgesetzblatt, p. 273) which enacts that no vessel used for food or for cooking shall be coated with an enamel or glaze which, when vinegar containing 4 per cent, of acetic acid is boiled in it for half an hour, gives up lead to the liquid. (*See* Report on Lead Compounds, etc., 1899, p. 26.) No similar law is in force in this country. How far this test of insolubility, which is certainly not less stringent than that suggested in Rule II., has accelerated the more general adoption of lead fritts of sparing solubility or has tended to restrict the amount of lead employed in glazing domestic ware can only be surmised.

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In this connection I would recall the statements, emanating from German manufacturers, which appear in the 1893 Report made to the Home Office by the Potteries Committee of Inquiry :—

> "But the worst of all is that we have a law in our country that makes you responsible for any damage done in that way to a workman [that is, by the employment of lead] whether it is the direct fault of the manufacturer or not. This law goes a long way. I had to pay a dipper that was affected by the lead and lost the use of his eyes. We used to use our raw white lead in the glaze, but after the experience we had, we now fritt it all." (Appendix E, p. 21.)

A number of articles purporting to be glazed with leadless glaze have been examined during the last twelve months. Some of these were free from lead, and others practically so ; but a certain number contained lead in amount corresponding to about 2 or 3 per cent. of the original glaze. This quantity of lead may or may not have been purposely added ; but in any case the result shows that workable lead glazes can be obtained with only about one-seventh or one-eighth of the amount of lead generally used. The ware in question appeared to be in no way inferior to ordinary lead-glazed ware.

Consequently, even if it were successfully contended that a limit of solubility, based upon the usual lead-content of glazes, should not be lower than 3 or 4 per cent., it may be pointed out that the lead-content of the glazes can be reduced ; and the limit based upon this reduced lead-content would be proportionately lower. A solubility of 3 per cent. becomes 1·5 per cent. when only one-half of the same fritt is used to make the glaze.

Or, to put the matter in another way, the glaze on the ware mentioned above as containing about 2 per cent. of lead oxide might have had the whole of its lead in the soluble form, whilst still conforming to the 2 per cent. standard of Rule II.

A glaze containing 10 per cent. of lead oxide could have one-fifth of its lead in the soluble form, and still conform to Rule II.

If the original fritt supplying the lead to this last glaze had contained 45 per cent. of lead oxide—a common enough percentage—the solubility of this fritt would have been as high as 9 per cent. That is, a fritt of 9 per cent. solubility could be used to supply the lead to a glaze containing 10 per cent. of lead oxide, and this glaze would conform to Rule II.

It has already been shown that a large majority of the fritts examined have been found to possess solubilities less than 4 per cent. The number having solubilities less than 9 per cent. would, of course, be still greater, so that a considerable range of fritts, and a wide margin to allow for accidental errors, would be available.

Objections which have been Raised.

Since the publication of the 1899 Report certain objections have been raised on one or two points :—

(i.) The fritts from Boch Frères factory and from La Société Céramique were objected to as containing too much silica and too little lead for English requirements.

This objection has been completely met by showing that fritts may contain much less silica and much more lead than these, whilst still remaining only slightly soluble. Twice as much lead, and less than four-fifths as much silica, are amounts frequently met with.

(ii.) One objection, which has been put forward with some pertinacity, is that the solubility of a glaze depends upon the fineness to which it is ground,

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so that the solubility is not a fixed quantity, but depends upon the circumstances of grinding. This has been advanced by Messrs. Jackson and Rich in a paper of which the following is a summary :—

Fritts having solubilities of about 7 per cent. and 5 per cent. respectively were ground finely and separated into finer and coarser portions by a process of elutriation. The finest fractions showed solubilities of about 17 and 15 per cent. ; the coarsest about 1 or 2 per cent. Whence it is argued that the solubility depends upon the fineness.

Then to explain the fact that fritts ground to closely-similar degrees of fineness show great differences of solubility, and that the action of the acid largely ceases after a time, the writers of the paper put forward the supposition that a layer of silica forms after a time round the particles and protects them from further attack by the acid. Certain experiments are put forward which are considered to support this view.

A detailed technical reply is given in the annexed paper (*see* p. 33). In general terms the answer is as follows :—

First.—There is a certain modicum of truth in the contention. But it is an academic and not a practical matter. The variation of solubility with fineness is relatively slight, and between the limits of grinding, which occur in practice, it is of no real significance. The elutriation experiments of Messrs. Jackson and Rich are vitiated by a fallacy which is explained in the detailed reply. The hypothesis of a protective layer is inconsistent with easily-ascertained facts.

The practical influence of grinding is described on pp. 8–9 of Parliamentary Paper Cd. 527. The mixed fritts there dealt with contained 46 per cent. of lead oxide; a glaze made from this mixture to contain 15 per cent. of lead oxide would show 0·91 per cent. solubility after 24 hours' grinding, and 1·17 per cent. after 36 hours. The increase, even with this exceptional grinding, is not a matter of moment.

Secondly.—Whether or not the solubility of a glaze increases with fineness is immaterial, provided that glazes are obtainable which when ground to the fineness required in practice conform to the proposed standard of insolubility. It is of no consequence that such glazes have lower solubilities when more coarsely ground. And, as a fact, such glazes are actually in use, as the following list shows :—

LIST OF GLAZES WHICH SUBSTANTIALLY CONFORM TO RULE II.

No.	Manufacturer.	Solubility.	Manufacturer's statement.
74	Fielding & Son	1·8	"Was ground finer than is necessary for commercial use."
1	Worcester Porcelain Co. ...	1·3	"Was in the condition, as regards fineness of sub-division, in which we use it in our manufacture."
59	Hammersley & Son	0·8	No enquiry made. Sent as "a sample of our glaze No. 365."
53	Carter & Co.	0·7	"Cannot be absolutely positive, but we think there is no doubt whatever that they were in the state in which we intended to use them."
4	Meakin, J. & G.	1·9	Cannot say. Materials were not ground at their own works, and though they suppose the grinding was about as fine as they would do it themselves, they would have much hesitation in expressing an opinion.

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No.	Manufacturer.	Solubility.	Manufacturer's statement.
75	Cartwright & Edwards ...	1·7	"Samples sent were in the fritt state, and not in the condition as regards fineness in which we use them."
76	Do.	1·5	
77	Do.	·9	
114	W. & E. Corn	2·2	Condition of grinding was that of the glazes as intended for use in bulk, and as the firm "are using it at the present moment."
119	Do.	1·5	
122	Keeling & Walker	1·3	"We should think the sample is of about the ordinary fineness."
141	Doulton's	1·9	"The glaze in question was ground to the necessary fineness for dipping."
152	Buller's, Limited	2·7	"The glaze is in the state of sub-division, in which we use it in glazing ware."
156	Dimmock & Co.	2·8	No enquiry made. Sent as "a sample of our fritted lead glaze."
164	Buller's	1·4	"Is in the state of sub-division in which it is used."
105	Hughes & Son	2·4	No reply.
223	Grindley & Co.	1·6	"It is ground sufficiently fine for use."
236	Buller's	1·5	"Ground ready for use."
259	Do....	1·5	
248	Wengers	0·2	"Of the fineness required for dipping pottery ware."
249	Do....	2·1	
206	Johnson Bros.	2·9	As regards grinding, this is an average "piece" as we shall use it.
237	Buller's	2·8	"Is ground ready for use."
256	Royal Crown Derby Co. ...	1·5	"As regards fineness of grinding, they are in the condition in which we propose to use them in the glaze-tub."
257	Do....	1·1	
258	Do....	1·5	
3	Salt Bros.	1·0	"In a proper condition for use in the glaze-tub, and is a sample of the glaze we are now using."

I have the honour to be,

Sir,

Your obedient Servant,

T. E. THORPE.

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Addendum.

In writing to Dr. Wilkens, of Messrs. Villeroy and Boch, I drew his attention to an apparent discrepancy in the figures furnished to me on the occasion of my visit to the Dresden works, as set out in the Report of 1899 (p. 25). I pointed out that the 41 parts of the fritt which was stated to be essentially the bisilicate of lead, containing presumably about 65 per cent. of lead oxide, would yield more than 10·2 per cent. of lead oxide in the glaze of which the composition was handed to me from the laboratory records.

In answer to my letter, Dr. Wilkens wrote as follows :—

" Bei der freundlichen Erwahnung des Besuches hiesiger Fabrik in Ihrem Berichte ist allerdings, wie ich zu meinem Bedauern gesehen habe, durch Misverstandnis wohl kein richtiges Bild von der Zusammensetzung unserer Glasur gegeben, und beehre ich mich darum solches urmseitig nun richtig zu stellen.

" Die chemische Formel unserer für das Steingut allgemein verwendeten Glasuren ist—

$$RO\ 2\begin{cases}SiO_2\\B_2O_3\end{cases} + 0{\cdot}33\ R_2O_3\begin{cases}SiO_2\\B_2O_3\end{cases}\ (8\ SiO_2 :\ 1\ B_2O_3)$$

" Für die farblose Glasur ist die Zusammensetzung—

$$0{\cdot}25\ K_2O + 0{\cdot}75\ Na_2O + 1{\cdot}5\ CaO + 2\ PbO + 1{\cdot}5\ Al_2O_3 + 12\ SiO_2 + 1{\cdot}5\ B_2O_3.$$

" Wir betrachten diese Glasur ihrer bestimmten chemischen Zusammensetzung wegen als Grundlage und setzen unsere Masse bezüglich ihres Kieselgehaltes derselben entsprechend zusammen.

" Die Erste in Ihrem Berichte angegebene Tabelle hat eigentlich wenig Wert, es ist die Angabe der Procente der einzelnen chemischen Bestandteile, es wäre richtiger gewesen diese mit ihrem Atomgewichten zu vervielfaltigen und die Zusammenstellung in folgender Weise za geben—

K_2O	0·25 × 94·2 =	23·55	oder	1·49	pro cent.
Na_2O	0·75 × 62 =	46·50	„	2·94	„
CaO	1·50 × 56 =	84·00	„	5·31	„
PbO	2·00 × 223 =	446·00	„	28·17	„
Al_2O_3	1·50 × 102·2 =	153·30	„	9·68	„
Sio_2	12·00 × 60·4 =	724·80	„	45·78	„
B_2O_3	1·50 × 70 =	105·00	„	6·63	„
		1583·15		100·00	

" Wir verwenden als Stoffe für die Glasur : Skandinavischen Feldspat mit Zusammensetzung :

$$65\ SiO_2 + 19{\cdot}2\ Al_2O_3 + 12{\cdot}8\ K_2O + 2{\cdot}3\ Na_2O\ ;$$

Kreide, Bleiglätte, Quarzsand, Borax (oder Borsaüirehydrat und Soda Calcin)

Steingutscherben, mit Zusammensetzung—

$$76{\cdot}6\ SiO_2 + 21{\cdot}7\ Al_2O_3 + 1{\cdot}7\ K_2O$$

Böhmischer Kaolin mit Zusammensetzung—

$$46{\cdot}64\ SiO_2\ 39{\cdot}46\ Al_2O_3.$$

Scherben setzen wir zu um die zu verwerthen und Feldspat zu ersparen.

" Früher haben wir alle Stoffe in ihrer entsprechenden Menge zusammengemischt und gefrittet, die Fritte dann gemahlen und so verwendet. Da aber das Mahlen in den Nasstrommeln verursachte, dass die gemahlene zum gebrauch fertige Glasurfritte sich leichter absetze und sich nicht so fest auf das Geschirr auf legte wie früher als die in sogenannter Schlippmahlen gemahlen worden war sahen wir um diesen Übelstanden zu begegnen uns genötigt, einen Teil der Stoffe (15 per cent.) nicht mit zu

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fritten sondern der Fritte erst beim Mahlen zuzusetzen wie aus nach folgender Zusammenstellung zu ersehen ist.

——	Per cent.	Per cent.	Per cent.	Per cent.	——
				Kg.	Fritte 1170 Kg.
Feldspat	6·5	3·5	3·0	6·25	46
Kreide	8·3	5·4	2·9	9·50	45
Bleiglätte	24·7	24·7	—	43·50	—
Quarzsand	18·5	18·5	—	32·50	—
Borax	15·9	15·4	0·5	27·25	0·5 (7 ?)
Steingutscherben ...	17·5	17.5	—	31·00	—
Kaolin	8·6	—	8·6	—	132
	100·0	85·0	15·0	150·Kg. (1 Versatz.)	1400 Kg. (1 Mahlung.)

"Für die gefärbten Glasuren, welche für die zugesandten Muster hiesigen farbigen Steinguts in Anwendung kommen dient dieselbe chemische Formel wie bei der farblosen Glasur, es werden Fritten hergestellt, bei welchen das Calcium oxyd durch die farbenden Metall oxyde RO eliminirt wird mithin durch CoO, CuO, NiO oder Al_2O_3 durch Fe_2O_3 Mn_2O_3 Cr_2O_3, Ur_2O_3. Diese Farbfritten werden dann mit gewohnlicher farblosen Glasur bis zur gewunschten Färburg verdünnt.

"Für gewisse Gegenstände z. B. für Sanitary ware verwenden wir eine zu Feldspat reichere Masse und erhitzen dieselbe bis zur Sinterung, diese Waren werden mit einer an Kieselsaüre reicheren aber bleifrien Glasur versehen."

Translation.

"On reading the account of the visit to our works which you were so good as to give in your Report, I must admit, as I find to my regret, that by some misunderstanding no true representation of the composition of our glaze has been given, and I have now the honour to set this out correctly.

"The chemical formula of the earthenware glaze we employ is—

$$RO\ 2\left\{\begin{matrix}SiO_2\\B_2O_3\end{matrix}\right. + 0{\cdot}33\ R_2O_3\left\{\begin{matrix}SiO_2\\B_2O_3\end{matrix}\right. (8\ SiO_2 : 1\ B_2O_3).$$

"For colourless glazes the composition is—

$$0{\cdot}25\ K_2O + 0{\cdot}75\ Na_2O + 1{\cdot}5\ CaO + 2\ PbO + 1{\cdot}5\ Al_2O_3 + 12\ SiO_2 + 1{\cdot}5\ B_2O_3.$$

"By reason of its definite chemical composition we consider this glaze as a foundation, and arrange the composition of our body as regards its content of silica accordingly.

"The first table given in your Report has but little practical value as it is merely a statement in per cents. of the several chemical constituents. It would have been more correct to have multiplied these by their atomic weights and to have given the composition in the following way :—

K_2O	0·25 ×	94·2 =	23·55	or	1·49 per cent.
Na_2O	0·75 ×	62 =	46·50	,,	2·94 ,,
CaO	1·50 ×	56 =	84·00	,,	5·31 ,,
PbO	2·00 ×	223 =	446·00	,,	28·17 ,,
Al_2O_3	1·50 ×	102·2 =	153·30	,,	9·68 ,,
SiO_2	12·00 ×	60·4 =	724·80	,,	45.78 ,,
B_2O_3	1.50 ×	70·0 =	105·00	,,	6·63 ,,
			1,583·15		100·00

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"We employ as materials for the glaze :—

Scandinavian felspar of the composition—

$$65\ SiO_2 + 19{\cdot}2\ Al_2O_3 + 12{\cdot}8\ K_2O + 2{\cdot}3\ Na_2O.$$

Chalk, litharge, quartzsand, borax (or boric acid and calcined soda).

Potsherds of the composition—

$$76{\cdot}6\ SiO_2 + 21{\cdot}7\ Al_2O_3 + 1{\cdot}7\ K_2O.$$

Bohemian kaolin of the composition—

$$46{\cdot}64\ SiO_2 + 39{\cdot}64\ Al_2O_3.$$

We add the sherds in order to use them up and to save felspar.

"Formerly we mixed all the materials in their relative proportions together and fritted them, ground the fritt and so used it. Since, however, the grinding in cylinders causes the milled glaze to settle more readily, thereby preventing it from covering the dipped article so well as when milled in the pan, it was necessary in order to obviate this disadvantage not to fritt a portion (15 per cent.) of the materials, but to add this to the fritt after milling, in the manner indicated below :—

——	Per cent.	Per cent.	Per cent.	Per cent.	——
				Kg.	Fritt 1170 Kg.
Felspar	6·5	3·5	3·0	6·25	46
Chalk	8·3	5·4	2·9	9·50	45
Litharge	24·7	24·7	—	43·50	—
Quartz sand	18·5	18·5	—	32·50	—
Borax	15·9	15·4	0·5	27·25	0·5 (7 ?)
Sherds	17·5	17·5	—	31·00	—
Kaolin	8·6	—	8·6	—	132
	100·0	85·0	15·0	150·00 (1 Batch.)	1400 Kg. (1 Milling.)

"For the coloured glazes employed on the articles of coloured ware which I send you we make use of the same chemical formula as in the colourless glazes. Fritts are prepared in which the lime is replaced by the colorific metallic oxide RO, as, for example, CoO, CuO, NiO, or the alumina by Fe_2O_3, Mn_2O_3, Cr_2O_3, Ur_2O_3. These coloured fritts are then diluted with the ordinary colourless glaze to the desired tint.

"For certain objects, as, for example, sanitary ware, we employ a body rich in felspar, and we heat this to the sintering point, the ware being coated with a glaze rich in silica, but free from lead."

In a letter from Rörstrand, Mr. Robert Almström wrote as follows :—

"Since I had the honour of seeing you here I have made many trials to obtain a glaze without lead, which could be fired at the usual heat of our glost oven (Segers cone O_2, O_3 = about 1,100 °C.), but I have succeeded only partly by substituting the oxide of lead by oxide of zinc. You will find amongst the samples I send a plate with this glaze. It, however, is very difficult to use : it must be applied on the ware with more care than a lead glaze ; is not so bright and resplendent and cannot be used for all under glaze colours. On the insulators that are fired at a higher temperature it comes out very bright and good."

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II.

On the relation between the Composition of Lead Fritts and the Solubility of the Lead which they contain.

The present communication deals with the conditions which determine the extent to which lead fritts are attacked by dilute acids comparable in strength with the acids in the gastric juice. It is designed to make clear some of the considerations which have led to the limitation of solubility, as regards lead, suggested by Rule II. of the Proposed Amended Special Rules.

These considerations are based upon the assumption that the toxic action of lead compounds depends primarily upon their solubility. If it has to be conceded that lead compounds must of necessity be used by the potter, the problem to be solved is: Is it possible to obtain compounds of lead which, while serving the practical needs of the potter in respect of such points as fusibility and expansibility, should at the same time be, in respect to their lead, nearly insoluble in dilute acids?

In seeking for such compounds we naturally turned in the first place to the silicates of lead. For certain special purposes, indeed, lead silicates are frequently employed by the potter, and attempts have from time to time been made in this country to substitute such silicates for the "raw" lead used in glazes generally. On the Continent this use of lead silicates is far more common than in England, and it has been generally recognised that their employment has greatly tended to minimise the risk of lead poisoning among pottery workers. In consequence of their more extended use, the conditions required to produce them successfully have received a considerable amount of attention. Indeed, we may at once say that the first insight into the chemical constitution of fritts which should approximate to the ideal character of a fritt was gained by a study of fritts which were found to be in use on the Continent, and were at the same time of a high degree of insolubility. That such fritts were sparingly soluble was generally recognised, but little appears to have been ascertained as to the conditions which determine their insolubility, although it was no doubt surmised that, broadly speaking, it must be dependent upon their chemical nature.

With a view of obtaining light upon the relation of solubility to chemical composition, a number of specimens of lead silicates both simple and complex were obtained from manufacturers in the Potteries and on the Continent, and after their solubility as regards lead had been determined, the specimens were analysed to see what information could be gained as to the causes of the differences of solubility shown by the various silicates.

For the solubility determinations the solvents selected in the earlier stages of the experiments were solutions of hydrochloric, acetic, and lactic acids, of various strengths ranging up to one per cent. Afterwards only a 0·25 per cent. solution of hydrochloric acid was employed; it contains what is considered to be about the average amount of free hydrochloric acid present in the gastric juice. As regards procedure, the method eventually found most practicable for the purpose in view was to shake the finely powdered silicate for an hour with a thousand times its weight of the solvent at the room temperature, using for this purpose an agitator worked by a small hot-air motor. The sediment was then allowed to settle for an hour, and the liquid filtered. The quantity of lead which had passed into solution was determined in the filtrate.*

Any small differences of solubility due to fluctuations of temperature were in the present connection unimportant.

Some of the estimations of the dissolved lead were made by a colorimetric method, but the majority were gravimetric, the lead being separated as sulphide and weighed as sulphate.

* The considerations which led to the particular method of estimating solubility, as regards lead, defined in Rule II., are stated in the accompanying Report (*see* p. 9).

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The first specimens examined included some "fritts" which at the time represented practically the only kind of lead silicate used to any appreciable extent in the Potteries. This compound approximates to a simple mono-silicate of lead, $PbOSiO_2$. It contains, however, the small quantities of alumina, lime, and alkalis usually associated with the silica in the flint from which the compound is made, one sample giving on analysis :—

	Per cent.
Silica...	25·11
Lead monoxide	70·40
Alumina	0·88
Lime	0·92
Magnesia	0·13
Alkalis	1·91
	99·35

At the time at which our inquiry began this crude mono-silicate was held to be a satisfactory substitute for "raw" lead, on the assumption that it was much less soluble than the latter. Contrary to expectation, however, it was found to yield practically the whole of its lead to the action of ·25 per cent. hydrochloric acid. Two different preparations gave the following figures :—

Specimen.	PbO present.	PbO dissolved by ·25 per cent. HCl.	Calculated on the total PbO present.
	Per cent.	Per cent.	Per cent.
1	71·2	70·0	98·3
2	70·4	67·3	95·6

It is evident, therefore, that, so far as the solubility of the lead is concerned, the advantage which the simple mono-silicate was supposed to possess over "raw" lead had no foundation in fact.

Turning our attention therefore to the complex silicates, we obtained from English makers two silicates having the following composition :—

	No. 3.	No. 4.
Silica	37·62	35·66
Lead Monoxide	37·92	45·77
Alumina	8·24	10·04
Lime	10·83	1·16
Magnesia	0·08	0·14
Alkalis	3·72	7·09
	98·41	99·86

The quantities of lead oxide dissolved from these were :—

From No. 3 ... ... 28·0 per cent.
„ „ 4 ... ... 10·8 „ „

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Two points are brought out by these results. In the first place, the solubility of the lead is very much smaller in both specimens than in the simple mono-silicates Nos. 1 and 2. Secondly, it will be seen that No. 4, with the larger percentage of lead oxide in its composition, gives to the action of acid a much smaller amount of lead than does No. 3. This was the first illustration we obtained of a principle elucidated more fully further on, namely, *that the quantity of lead dissolved has no necessary relation to the quantity of lead in the silicate.*

Extending the enquiry, we next examined three "fritts" containing much smaller quantities of lead than the foregoing, and including also boric acid as a constituent. The composition and solubility of these three boro-silicates are given below :—

	No. 5 (English).	No. 6 (Belgian).	No. 7 (Dutch).
Silica	49·67	52·94	53·16
Lead monoxide	16·23	22·44	18·97
Alumina	10·34	7·62	8·06
Lime	8·54	8·82	8·96
Magnesia	0·19	0·12	0·11
Alkalis	9·20	3·99	4·86
Boric oxide	5·83 (difference)	3·82	5·88 (difference)
	100·00	99·75	100·00
Lead oxide dissolved by 0·25 per cent. HCl	1·70%	0·65%	1·20%

Here the solubility of the lead, especially in the Belgian boro-silicate, is remarkably small compared with what was shewn by the previous specimens.

Now, in round numbers, these examples differ from Nos. 3 and 4 chiefly in containing about 15 per cent. more silica and about 20 per cent. less lead oxide. Moreover, they have from 4 to 6 per cent. of boric oxide, which is not present at all in Nos. 3 and 4.

The question, therefore, suggested itself: Was the factor determining the insolubility of the lead to be sought in a high percentage of silica or in a low proportion of lead oxide? Or was it, as a possibility without very much likelihood, to be found in the introduction of boric oxide into the "fritt?"

The next specimen that we analysed gave us the answer to these questions, and it was an unmistakeable negative. This specimen was a Swedish "fritt," for which the figures are :—

No. 8.

Silica	44·74 per cent.
Lead monoxide	44·06 ,,
Alumina	5·47 ,,
Lime	0·89 ,,
Magnesia	0·13 ,,
Alkalis	3·37 ,,
Boric oxide	Absent.
Loss on heating	0·45 ,,
	99·11 per cent.

Lead oxide dissolved by 0·25 per cent. HCl ... 2·10 per cent.

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Although the solubility of the lead is in this case somewhat greater than in Nos. 5 to 7, it is a quantity of the same order as the figures for these, and for the purpose of the moment may be classed with them.

Here, then, it was plain that the low solubility could not be due to the presence of boric oxide, for this constituent is absent. Nor was it due to a high percentage of silica, which is here much less than in Nos. 5, 6, and 7. Nor, again, could it be attributed to a low proportion of lead oxide; because of this there is twice as much as in the three previous examples.

Comparing in this way the results of a number of analyses, it became evident that the solubility of the lead does not depend in a simple manner upon any one of the constituents. We append for this purpose a table showing the composition and solubility of a number of silicates (*see* p. 32); here we will illustrate the point by reference to the lead oxide only :—

I. Solubilities practically the same.

Amounts of lead oxide in the silicates very different.

Silicate.	Percentage of PbO in the Silicate.	Solubility of the PbO. Percentage on Silicate.
Specimen 7a (Dutch)... ...	18·0	Traces.
„ 9 (English) ...	40·4	0·2
„ 10 „ ...	52·3	0·4
„ 11 „ ...	41·3	0·7
„ 6 (Belgian) ...	22·4	0·7

II. Solubilities very different.

Amounts of lead oxide in the silicates practically the same.

Silicate.	Percentage of PbO in the Silicate.	Solubility of the PbO. Percentage on Silicate.
Specimen 3 (English) ...	37·9	28·0
„ 12 „ ...	36·2	1·4
„ 4 „ ..	45·8	10·8
„ 8 (Swedish) ...	44·1	2·1

The same principle holds for each of the other oxides, whether basic or acidic. Generally, the quantity of lead dissolved by the solvents used bears no necessary proportionality to the percentage of any constituent of the silicate.

Primarily and in the main, the insolubility of the lead depends not upon any one oxide or group of oxides, but upon the maintenance of a certain proportion between the whole of the basic oxides on the one hand, and the whole of the acidic oxides on the other. It may be shown that this proportion becomes eventually referable to the forms of silicic acid from which the silicates for purposes of classification may be considered to be derived. Meanwhile, one method of formulating this relation is as follows :—

Proceeding as is customary in calculating the empirical formula of a silicate, we divide the percentage weight of each oxide by its molecular weight. The quotient expresses the relative number of molecules of that oxide present

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in a definite weight of the silicate. Adding the quotients for the acidic oxides gives the total number of acidic molecules; and similarly for the basic molecules. If we then take the ratio of the former sum to the latter for each silicate, we get the following table :—

Silicate.	Value of ratio :— No. of acidic mols. / No. of basic mols.	Solubility. Percentage on Silicate.
1	2·75	Traces
2	2·56	"
3	2·49	1·2
4	2·43	0·7
5	2·42	2·4
6	2·37	2·1
7	2·35	0·2
8	2·20	0·2
9	2·18	0·6
10	2·15	0·2
11	2·10	0·2
12	2·02	1·7
13	2·06	0·7
14	1·98	0·8
15	1·98	0·4
16	1·95	3·0
17	1·93	1·5
18	1·89	2·0
19	1·44	40·1
20	1·43	39·5
21	1·42	10·8
22	1·33	5·1
23	1·27	28·0
24	1·20	70·3
25	1·13	67·3
26	0·90	70·0

The table shows certain discrepancies which are significant and which will be discussed further on. Disregarding these for the moment, we see that so long as the value of this ratio is higher than or approximately equal to two, the amount of the lead extracted is small, being for the most part much below 2 per cent., and only in one instance reaching 3 per cent. That is, the solubility is small so long as there are present two molecules or more of acidic oxides to each molecule of basic oxide. When the ratio falls much below two, the quantity of lead dissolved begins rapidly to increase.

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The relation between acidic and basic oxides may be formulated in another manner, which may be thus stated :—Express the percentage of each basic oxide in terms of some one of them, say PbO, and that of the boric oxide in terms of SiO_2. Then take the ratio of the sum of the basic oxides to that of the acidic oxides.

The table previously given suggests that, so far as influence upon the solubility of the lead is concerned, one molecule of the sesquioxide Al_2O_3 may replace one molecule of a monoxide base. We may therefore calculate the ratio first with Al_2O_3 put = PbO, and next with Al_2O_3 = 3 PbO, and compare the results, which are given with the solubilities in the following tables :—

Arranged in order of increasing values of the ratios.

(i) With Al_2O_3 put = PbO.			(ii) With Al_2O_3 put = 3 PbO.		
Silicate.	Ratio.	Solubility of PbO.	Silicate.	Ratio.	Solubility of PbO.
1	1·34	Traces	5	1·57	2·4
2	1·44	„	1	1·90	Traces
3	1·50	1·2	2	2·01	„
4	1·52	0·7	6	2·10	2·1
5	1·53	2·4	3	2·11	1·2
6	1·56	2·1	4	2·12	0·7
7	1·57	0·2	10	2·19	0·2
8	1·68	0·2	15	2·34	0·4
9	1·70	0·6	8	2·41	0·2
10	1·73	0·2	17	2·41	1·5
11	1·77	0·2	18	2·48	2·0
13	1·80	0·7	13	2·56	0·7
12	1·82	1·7	7	2·60	0·2
15	1·83	0·4	11	2·64	0·2
14	1·87	0·8	16	2·64	3·0
16	1·91	3·0	12	2·65	1·7
17	1·92	1·5	14	2·76	0·8
18	1·97	2·0	9	2·78	0·6
20	2·59	39·5	24	3·27	70·8
19	2·59	40·1	25	3·43	67·3
21	2·61	10·8	22	3·55	5·1
22	2·79	5·1	21	3·84	10·8
23	2·92	28·0	23	3·88	28·0
24	3·09	70·3	20	3·90	39·5
25	3·26	67·3	19	3·92	40·1
26	3·80	70·0	26	4·10	70·0

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By either method of computation the same compounds fall into the same groups, but the former of the two methods gives the more consistent results for the higher solubilities. For this reason, together with some other considerations, this method of calculation has been provisionally adopted, pending any further light which may be thrown upon the matter by further investigation.

The more theoretical discussion of this point would be out of place here, but an example showing the method of calculation may be of practical assistance to the manufacturer. Such an example is therefore adduced :—

Percentage Composition of Fritt.	Factor.	Products.	
		Bases.	Acids.
Silica ... ... 44·7	—	—	44·7
Lead Monoxide 44·1	—	44·1	
Alumina ... 5·5	× 2·181	= 12·0	
Lime ... ... 0·9	× 3·980	= 3·6	
Magnesia ... 0·1	× 5·523	= ·6	
Alkalis ... 3·4	× 2·850	= 9·7	
		70·0	
Boric oxide ... Absent	× 0·863	—	Absent
			44·7

$$\text{Ratio } \frac{\text{Bases}}{\text{Acids}} = 70{\cdot}0 \div 44{\cdot}7 = 1{\cdot}56.$$

The solubility of this fritt was 2·1 per cent., and that of a glaze containing 15 per cent. of lead oxide supplied by this fritt would therefore be 0·7 per cent.

In the latter part of the tables there is a considerable range in the solubilities shown. It must be borne in mind, however, that what is now being advanced is not that the quantity of lead dissolved is directly proportional to the ratio, but that the solubility is small below a certain value of the ratio, and becomes considerable when this value is much exceeded. The value in question is about two by the first method of calculation, and about $2\frac{3}{4}$ by the second.

This condition then,—the maintenance of the proper relation between the basic oxides and the acidic oxides,—is the primary factor governing the insolubility of the lead in the silicate.

A second condition may also be mentioned. Dealing now only with the specimens 1 to 18, all of which conform to or are very near the limiting ratio whichever method of calculation is adopted, it will be seen that in these the solubility of the lead, though never large, varies very erratically. In some instances mere traces are dissolved ; in others the quantity is from one to three per cent.

The explanation of this was suggested by considering the results of the following experiments :—

LEAD OXIDE DISSOLVED.

——	With 0·25 per cent. HCl.	With 0·05 per cent. HCl.
From Specimen K	0·65 per cent.	0·60 per cent.
„ „ L	1·20 „	1·10 „

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Here the acid used in one case is five times as strong as in the other, but it extracts scarcely any more lead. This indicated that though the great bulk of each specimen consisted of silicate which was not attacked even by the stronger acid, it nevertheless contained a small quantity of some compound of lead, either admixed with it or in some loose state of combination, which was readily dissolved even by the weaker solvent. Most probably this may have been due to the process of fusion not having been sufficiently prolonged to effect the complete chemical changes required. But, let the explanation be what it may, the experiments suggested that in those specimens which conformed to the ratio indicated, yet still yielded one or two per cent. of lead oxide to the solvent, the greater part of the lead compound thus dissolved was in this admixed or loosely combined form. If so, it could be removed by treatment with acid, and the residue should then be practically insoluble.

This supposition was verified experimentally, the results of some typical experiments being given below. The observation has a practical value, since it shews the manufacturer that by simply grinding certain moderately soluble fritts with dilute acid, he can obtain a product which yields mere traces of lead to the action of such solvents as we are here concerned with.

Experiments upon the Treatment of Lead Silicates with Dilute Solution of Hydrochloric Acid.

Silicates which yielded amounts of soluble lead oxide ranging up to 2 per cent. were separately shaken with 500 times their weight of 0·25 per cent. HCl for six hours. The dissolved portion was analysed, and the undissolved residue tested for its solubility as regards lead.

Silicate.	Amount of silicate dissolved.
No. 1	3·02 per cent.
„ 2	4·35 „
„ 3	3·70 „
„ 4	5·97 „
„ 5	3·41 „
„ 6	2·72 „
„ 7	3·40 „

In all cases the dissolved portion consisted largely of lead oxide. A typical analysis is adduced to show the general character of the substances dissolved.

Lead silicate No. 7. Composition of the dissolved portion—

SiO_2	2·1	per cent.
PbO	67·6	„
Al_2O_3	10·3	„
CaO	5·3	„
MgO	Traces	„
Na_2O	7·9	„
K_2O	6·8	„
B_2O_3	Traces	„
	100·0	

In the undissolved residues the percentage of lead oxide is but little less than in the original silicates. But the amount of this lead now extracted by

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the standard solvent is only about one-third to one-eighth of that yielded previously :—

Silicate.	Lead Oxide present.		Lead Oxide dissolved.	
	(i) In the original.	(ii) In the residual silicate.	(i) From original.	(ii) From residual silicate.
	Per cent.	Per cent.	Per cent.	Per cent.
No. 1	22·4	21·8	0·7	Traces
„ 2	19·0	18·0	1·2	Traces
„ 3	53·2	52·3	2·0	0·4
„ 4	49·3	47·5	1·5	0·2
„ 5	24·5	24·0	0·6	0·2
„ 6	41·4	40·7	0·8	0·2
„ 7	41·3	40·4	0·7	0·2

Thus the conditions upon which the production of nearly insoluble lead silicates suitable as fritts depends, are :—

Firstly. The preservation of the proper relation between the acidic and the basic constituents, as exemplified above.

Secondly. The fusion of the materials for such a time and in so thorough a manner as to allow of the chemical reactions being completed.

To these may be added in certain cases, the treatment of the silicate with acid in order to extract small quantities of admixed or loosely combined lead compounds from the bulk of the product.

The following propositions are of both practical importance and theoretical interest.

Provided that the foregoing conditions are satisfied, then, without prejudice to the insolubility in the standard solvent of the lead in the silicate :—

(1.) The quantity of lead oxide in the silicate may have any value up to 50 per cent., or even higher.

(2.) The other bases (lime, alumina, and alkalies) may vary considerably, replacing one another, and also the lead oxide, within very wide limits. This is illustrated by the following table :—

TABLE SHOWING THAT THE NATURE OF THE BASIC OXIDES HAS LITTLE OR NO EFFECT UPON THE AMOUNT OF LEAD OXIDE DISSOLVED.

Silicate.	Percentage.				Lead oxide dissolved.
	PbO.	Al_2O_3.	CaO.	Alkalis.	Percentage on silicate.
L_1	19·0	8·1	9·0	4·9	1·2
G	16·2	10·3	8·5	9·2	1·7
Almströms "A"	44·1	5·5	0·9	3·4	2·1
Flint Glass	44·6	0·4	0·5	8·1	2·4

(3.) The influence of boric oxide, irrespective of that of the silica with which it may be associated, still remains to be ascertained, but it may

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be pointed out that boric oxide up to 6 per cent., the highest amount met with in the specimens examined, may be present without apparently exercising any special influence in promoting the solubility of the lead.

TABLE SHOWING THE COMPOSITION OF VARIOUS LEAD SILICATES, WITH THE AMOUNT OF LEAD OXIDE DISSOLVED FROM THEM BY 0·25 PER CENT. SOLUTION OF HYDROCHLORIC ACID.

Silicate, arranged in order of increasing solubility.	PbO dissolved by 0·25 per cent. HCl. Per cent. of silicate.	Percentage composition.						
		PbO.	CaO.	MgO.	$(Na,K)_2O$.	Al_2O_3.	B_4O_3.	SiO_2.
1	Traces.	21·83	8·54	0·12	3·80	7·43	3·84	54·44
2	Do.	18·04	8·43	0·06	4·39	7·71	6·14	55·23
3	0·7	22·44	8·82	0·12	3·99	7·62	4·07	52·94
4	1·2	18·97	8·96	0·11	4·86	8·06	5·88	53·16
5	1·7	16·23	8·54	0·19	9·20	10·34	5·83	49·67
6*	2·0	—	—	—	—	—	—	37·88
7	2·1	44·06	0·89	0·13	3·37	5·47	—	44·74
8	2·4	44·64	0·53	—	8·05	0·36	—	45·48
9	3·0	41·13	2·08	0·15	5·88	7·15	—	43·61
10*	5·1	—	—	—	—	—	—	29·78
11	10·8	45·17	1·16	0·14	7·09	10·04	—	35·66
12	28·0	37·92	10·83	0·06	3·72	8·24	—	37·62
13	39·5	46·78	1·98	0·24	2·80	11·52	1·17	33·75
14	40·1	48·70	0·83	0·30	3·59	10·97	1·35	33·43
15	67·3	70·40	0·92	0·13	1·91	0·88	—	25·11
16	70·3	70·25	0·51	0·06	1·59	1·08	2·64	23·87

* Inserted to show that the solubility of the lead oxide does not depend simply upon the proportion of SiO_2. The full details of these, as of some others mentioned in the paper, are withheld from publication by desire of the Manufacturers.

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III.

On the Influence of Grinding upon the Solubility* of the Lead in Lead Fritts.

A paper dealing with this subject was communicated to the Manchester Literary and Philosophical Society on Oct. 30th last by Messrs. Jackson and Rich, of the Victoria Institute, Tunstall, and has since been circulated somewhat widely in the Potteries.

Purport of Paper.—The main purport of the paper is to show that, in the case of lead fritts, "solubility in dilute acid is greatly influenced by the degree of fineness to which the particles have been ground." (Manchester Memoirs, Vol. 45, Part 1, No. 2, pp. 6–7.) Starting with the assumption that solution is possible only from the surface of the particles, the authors show that the extent of surface of any given weight of a fritt is increased by decreasing the size of the particles, and they contend that, consequently, the action of the solvent is also increased. They adduce certain experimental results which are considered to support this contention.

Practical Bearing.—So far as the practical aspect of this question is concerned, the reply is obvious. Suppose that workable glazes can be obtained, which when ground to the degree of fineness necessary in practice are within the selected standard of solubility. Then it is of no consequence that their solubility is smaller when the glazes are more coarsely ground. This is all that is involved in the point under discussion.

Now, as a matter of fact, such glazes are in use. This is shown by the list given on pp. 18–19 of the accompanying Report, which shows the solubility of the lead in a number of glazes, together with the statements of the manufacturers regarding the degree of fineness in each case.

It is true that this list may possibly not include examples of the most finely-ground glazes ever employed by the potter, though it may do so. But it certainly includes some which are in at least an average condition of fineness; and the difference between these and the most finely-ground glazes can be but small.

Influence of fineness a subordinate matter only.

As regards the more theoretical aspect of the matter, it is in the first place quite easy to show that the solubility of the lead in fritts does not depend merely, or even largely, upon the extent of surface exposed—that is, upon the fineness of the particles.

The following specimens of fritts were all reduced to nearly impalpable powder in an agate mortar before being submitted to the action of the solvent. They were, therefore, in closely similar, if not identical, conditions of fineness. Hence, if the solubility were merely a function of the extent of surface, the solubilities should all approximate to the same value. If subdivision were even a considerable factor, there should be some approach to similarity in the results —they should be quantities of much the same order of magnitude. It will be seen that there is no suggestion of any such uniformity :—

Fritt.	Solubility of Lead. Percentage on Fritt.
1	0·7
2	1·2
3	2·1
4	28·0
5	40·1
6	67·3
7	70·1

* Throughout this paper the term "solubility" denotes the weight of lead, calculated as monoxide, dissolved from a powdered fritt or glaze, when the fritt or glaze is shaken for an hour with 1,000 times its weight of 0·25 per cent. hydrochloric acid and allowed to settle for a further hour before being filtered.

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Thus the fineness alone of a fritt is not the chief factor in determining the solubility of the lead. The last three specimens belong, in fact, to a class of silicates which, whether ground moderately fine or extremely so, readily give up practically the whole of their lead to dilute acids. The first three belong to a class which, under closely similar conditions of fineness to that shown by the last three, yield to acids a relatively small proportion only of lead. These classes are sharply distinguished by differences of chemical composition, and it is this latter circumstance which is the primary factor determining the solubility. The effect of fineness is a matter apart from this, and altogether subordinate to it.

Action not that of a solvent on a single substance.

It is tacitly assumed by the writers in question that the process of solution involved is one in which a single substance—one chemical individual—is attacked by a solvent acting at the surface only of the particles (pp. 9, 10, loc. cit.).

If this were so, then, after a first treatment of a fritt with dilute acid, if the solvent be removed and the residue again treated with a fresh quantity of the solvent, the amount of lead dissolved should be practically the same as at first.

Experiment shows that this is not the case. The quantity of lead extracted on the second treatment is only a fraction of that first yielded :—

Silicate.	Lead Oxide Present.	Lead Oxide Dissolved.	
		1st Treatment.	2nd Treatment.
No.	Per Cent.	Per Cent.	Per Cent
1	22·4	0·7	Traces.
2	19·0	1·2	„
3	53·2	2·0	0·4
4	49·3	1·5	0·2
5	24·5	0·6	0·2
6	41·4	0·8	0·2
7	41·3	0·7	0·2

"Protective Layer" hypothesis.

Messrs. Jackson and Rich endeavour to explain this behaviour by supposing that an insoluble coating of silica is deposited upon the particles, and that this protects them from further action of the solvent (loc. cit., pp. 9–15).

Silica does not form a "protective layer."

Now, it is demonstrable that in many cases no such "protective" layer is formed. In these cases the lead is not "protected" by the silica or any other compound ; it is wholly, or almost wholly, removed on treatment with dilute acid. The following experiments prove this point :—

Fritt.	Lead Oxide present.	Lead Oxide dissolved by ·25 per cent. HCl.
No. 1	71·2 per cent.	70·0 per cent.
„ 2	70·4 „	67·3 „
3	70·3 „	70·3 „
4	46·8 „	39·5 „
„ 5	48·7 „	40·1 „

It is beyond question that in such cases as the above the silica does not form an effective protecting layer. It is difficult to see what reason can be adduced to show why silica should act differently in other cases.

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If it be said that the quantity of silica in the above fritts is too small to act as a protective layer, the reply is that some of them contain more silica than other fritts which have much smaller solubility. For instance :—

	SiO_2 present.	PbO present.	PbO dissolved.
No. 5	33·4	48·7	40·1
„ 6	29·8	59·3	5·0
Other examples are :—			
No. 7	35·7	45·8	10·8
„ 8	34·9	57·3	2·6
And with nearly equal percentages of silica :—			
No. 9	37·6	37·9	28·0
„ 10	37·9	53·2	2·0

Thus two fritts, A and B, may have the same quantity of silica, yet A is largely attacked and B but slightly. (Nos. 9 and 10.) Or A may have *more* silica than B, and still be unprotected. Nos. 5 and 6, also 7 and 8.) Finally, A may have *less* silica than B, and, nevertheless, be the more largely attacked. (Nos. 5 and 10.) It is difficult to give much credence to a theory of protective action which is certainly not exercised at all in many cases, and in others exhibits so much caprice as to render impossible a reliable forecast of its probable effect.

Fritt not a single compound.

Underlying the whole of Messrs. Jackson and Rich's argument is the assumption that a fritt is a single chemical entity. There is evidence to show that this is probably an erroneous assumption. A fritt would appear, in fact, to be usually a mixture of at least two lead compounds. The proportion of one of these, however, may be small compared with the main bulk of the fritt.

The considerations which suggest this are as follows :—

I. *Chemical.*—In so far as a fritt is attacked by a solvent, its soluble constituents, if the fritt is a single compound, will be found to bear the same proportion to one another in the solution as in the original fritt. Whether the silicic acid be dissolved or not, this relation will hold for the base-oxides. If, however, the bases in the dissolved portion be found to have a different proportion to one another than exists in the original fritt, then the result is evidence that the fritt was not a single compound. Applying this deduction to the case of seven specimens of fritts whose composition had been ascertained, together with that of the dissolved portion given on treating the fritts with excess of dilute hydrochloric acid, the following comparisons were obtained :—

TABLE SHOWING PROPORTIONS OF BASES IN ORIGINAL FRITTS, COMPARED WITH PROPORTIONS PASSING INTO SOLUTION.

Base-Oxides (calculated to percentages on their sum).

	No. 1.		No. 2.		No. 3.		No. 4.		No. 5.		No. 6.		No. 7.	
	Fritt.	Solution.	Fritt.	Solution.	Fritt.	Solution.	Fritt.	Solution.	Fritt.	Solution.	Fritt.	Solution.	Fritt.	Solution.
PbO ...	52·3	52·0	46·4	43·3	86·5	79·5	83·4	80·8	52·4	46·3	73·7	67·3	75·1	69·1
Al_2O_3 ...	17·8	16·0	19·7	17·4	7·3	3·0	7·6	4·1	27·1	21·1	15·8	9·0	14·0	10·5
CaO ...	20·6	20·0	22·0	22·7	1·5	4·1	4·9	5·1	8·3	9·3	3·4	6·0	4·9	5·4
Na_2O ...	9·3	12·0	11·9	16·6	1·3	6·6	0·9	4·9	7·5	14·6	2·8	10·2	3·2	8·1
K_2O ...					3·4	6·8	3·2	5·1	4·7	8·7	4·3	7·5	3·8	6·9
	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0

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These results show that in the soluble portion the constituents do not bear the same proportion to one another as obtained in the original fritt. The lime and alkalis are, as a rule, higher; the lead oxide and alumina somewhat lower. Hence it would appear that some process of selective solution has occurred, and that the fritt was, therefore, not originally a single chemical body.

II. *Physical.*—If a fritt consisted of only one chemical compound it could not by any process of grinding and levigation be separated into fractions having different densities. But there is experimental evidence to show that such fractions do result when some fritts are ground and elutriated. Thus determinations were made of the specific gravity of three elutriated fractions, α, β, and γ, of the same fritt, the results being:—

Specific Gravity of		α	...	3·683
,,	,,	β	...	3·742
,,	,,	γ	...	3·606

Had the fritt been a single compound the three results should have been the same, within the limits of experimental error.

Thus the facts adduced, both chemical and physical, tend to show that, at least in some kinds of fritt, there is present a certain proportion—which, however, may be but small—of a readily-soluble lead compound in a state of admixture with the bulk of the fritt.

Explanation of Jackson and Rich's elutriation experiments.

This consideration suggests the explanation of some results obtained by Messrs. Jackson and Rich, and displayed in the table on p. 5 (*loc. cit.*). That table purports to show that a fritt "A" has a solubility of 1·5 per cent. when in the condition of fineness corresponding to a pressure of 100 c.m., and that when reduced to the state of subdivision denoted by 1 c.m. pressure the solubility is increased to 17·5 per cent.

But this conclusion is fallacious if the specimen is a mixture of two or more substances. The argument of the authors is based upon the assumption that they are dealing throughout with the same compound in different states of subdivision. It has no validity if more than one compound is present, since the solubilities found do not all relate to the same substance.

Now, it is well known that the more soluble kinds of lead-silicate are of softer texture than the more insoluble. In the process of grinding a fritt which contains a small admixture of such soluble silicate, this more soluble portion will, on account of its softness, be ground to finer dimensions than the bulk of the fritt. Consequently, when the powder is separated into finer and coarser fractions by elutriation, a great part of the soluble compound will be found concentrated in the finer portions. These finer portions will, therefore, show a solubility greater than the average for the whole fritt, while the coarser fractions will have a solubility less than the average; which is precisely what is shown by the experiments adduced by Messrs. Jackson and Rich.

Thus the experiments in question do not prove that the differences of solubility obtained are due to mere differences of dimensions of the particles. They can only do this if the various fractions are shown to have the same chemical composition, and on this point the authors offer no evidence whatever.

In the concluding section of their paper (*loc. cit.*, p.p. 12–13), the writers describe an experiment in which a specimen of glaze was found to be continuously acted upon by acid when mixed with pebbles and rotated for 22 hours in a cylinder. The quantity of lead oxide dissolved was 2·28 per cent. of the glaze after a quarter of an hour's action, 11·16 after twelve hours, and 13·32 at the end of the twenty-two hours. This is considered to support the hypothesis that silica forms a protective layer; since the friction with the pebbles, it is argued, would continuously remove this layer and allow the acid to act without cessation upon the particles of fritt.

The experiment as described, is, however, of very doubtful value. No information is given as to the behaviour of the glaze under the same conditions but without the pebbles. Nor are details furnished of the composition of the glaze. Only two-fifths of the usual volume of acid was employed, and the strength of this small volume would be very considerably reduced by the

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acid-neutralising constituents of the glaze. It is quite possible that the acid thus weakened would act only slowly on certain kinds of fritts, altogether irrespective of any supposed layer of silica and its removal by pebbles. Moreover, if, as is commonly the case, the glaze contained calcium carbonate, the effect of this when the acid was very weak would be to render the action still slower by the tendency to form insoluble lead carbonate. Thus the gradual action of the acid described by the authors is explicable on quite other grounds than those alleged by them; and in the absence of further data the experiment must be looked upon as inconclusive. Very similar objections may be urged also against the second experiment, with "commercial di-silicate," described on p. 14.

Unsatisfactory fritts and glazes used in Jackson and Rich's experiments.

Finally, it is to be especially noted that the glaze experimented with was one which, from the figures given, would evidently if tested by the standard method, have furnished a solubility-figure of at least 5 to 6 per cent., or about one-third of the whole quantity of lead present. Any argument legitimately derived from the behaviour of this glaze is thus an argument against the employment of glazes yielding a solubility-figure of so high a value as 5 or 6 per cent. But this argument has no necessary validity against glazes whose solubilities are less than 2 per cent., since the lead fritts used in the two cases must be of different chemical composition if the glazes have the same lead-content. It is useless to base a contention against a 2 per cent. limit upon the behaviour of a glaze which is obviously outside that limit.

In this connection it may be pointed out that the chief experiments upon which Messrs. Jackson and Rich rely are made with fritts having somewhat considerable initial solubilities. Thus the fritts A and B on p. 5 and the di-silicate of p. 14 have solubility-figures of 7·0 (mill-ground), 5·0, and 8·2 respectively. It would have been more to the point if the experiments had been carried out on fritts of low solubility—say 1 or 2 per cent. Even if it be admitted for a moment that the experiments are satisfactory, they only show that it is possible to select fritts of a certain character which shall behave in the manner indicated. They prove nothing, and they can prove nothing, with respect to the behaviour of fritts having lower solubility and therefore different chemical composition.

Effect of grinding of no importance.

Turning again to the practical side of the matter; it has never been contended that fineness of subdivision is absolutely without effect upon the quantity of lead dissolved. It is a mere commonplace to admit that when solvent action occurs, it is exerted more readily upon an impalpable powder than upon the same substance in the form of coarse granules.

What is maintained is, that within the limits of fineness occurring in actual practice the variation of solubility is too small to be of serious moment.

This may be shown by reference to the following experiments, described on p. 9 of the Parliamentary Paper (Cd. 527) "On the Use of Lead in the Manufacture of Pottery."

Equal weights of six specimens of fritt having solubilities ranging from 1·1 to 3·2 per cent. were ground together for 24 hours in a hand-mill. The powder was then of fully an average working degree of fineness, and its solubility was 2·8 per cent. After being reduced to what must be regarded as a somewhat extreme state of sub-division by further grinding for 12 hours, the solubility was 3.6 per cent.

Now, the percentage of lead oxide contained in the mixed fritts was 46·0. If, therefore, the mixture in the first state of division were used to supply the lead in a glaze containing 15 per cent. of lead oxide, the solubility of this glaze would be 0·91 per cent. If it were used in the second or extremely fine state of subdivision, the solubility would be 1·17 per cent. The difference is by no means an inappreciable one, but it is certainly not a matter of importance. Both figures, it will be seen, are much below the suggested limit of 2 per cent.

Summary.

It has been shown—

(1.) That a fallacy underlies Messrs. Jackson and Rich's conclusions, inasmuch as a fritt does not, as they assume, necessarily consist of a single chemical compound.

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(2.) That the hypothesis of a protective layer of silica, essential for the authors' explanation of the observed behaviour of fritts, is not in accordance with certain easily-demonstrated facts.

(3.) That some of the authors' experiments are inconclusive, and do not necessarily bear the interpretation placed upon them.

(4.) That, even if Messrs. Jackson and Rich's conclusions were established for the specimens dealt with, these specimens are mainly of somewhat high solubility, and arguments based on them would not of necessity, and do not as a fact, apply to fritts of lower solubility, since these have a different chemical composition.

(5.) That, granting a very fine powder to be somewhat more soluble than a very coarse one, the variations of solubility of slightly-soluble glazes, between the limits of fineness occurring in actual practice, are of inconsiderable magnitude and of only theoretical importance.

(6.) That, whether or not the solubility varies to some extent with the fineness, the matter is of no practical consequence, since glazes can be obtained, and are in use, which are of the fineness required in working, and which conform to the suggested limit of solubility.

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USE OF LEAD IN THE MANUFACTURE OF POTTERY.

REPORTS

RECEIVED BY

HIS MAJESTY'S PRINCIPAL SECRETARY OF STATE FOR THE HOME DEPARTMENT,

FROM

PROFESSOR T. E. THORPE, C.B., LL.D., F.R.S.,

PRINCIPAL OF THE GOVERNMENT LABORATORY.

Presented to both Houses of Parliament by Command of His Majesty.

LONDON:
PRINTED FOR HIS MAJESTY'S STATIONERY OFFICE,
BY DARLING & SON, LTD., 34–40, BACON STREET, E.

And to be purchased, either directly or through any Bookseller, from
EYRE & SPOTTISWOODE, EAST HARDING STREET, FLEET STREET, E.C., and
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1901.

[Cd. 527.] *Price 2d.*

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TWENTIETH REPORT OF THE INSPECTORS OF RETREATS, AND THE FIRST REPORT OF THE INSPECTOR OF CERTIFIED REFORMATORIES, UNDER THE INEBRIATES ACTS, 1879 TO 1899, FOR THE YEAR 1899.

Inebriates' Acts Department,
Home Office,
Whitehall, S.W.,
10*th October*, 1900.

SIR,

WE have the honour to submit for your consideration the Reports required by Statute concerning institutions licensed and certified under the provisions of the Inebriates Acts, 1879 to 1899.

This combined volume includes :—

1. An Introductory Chapter.

2. The Twentieth Report concerning the work of Retreats.

3. The First Report on Certified Inebriate Reformatories established and conducted under the Act of 1898.

Certain tables and statistics have been added to both Reports in the hope that they may prove of value in assisting you in your review of the subject.

We have the honour to be,
Sir,
Your obedient Servants,

H. W. HOFFMAN.

R. WELSH BRANTHWAITE.

To

The Right Honourable
Sir MATTHEW WHITE RIDLEY, Bart., M.P.,
Her Majesty's Secretary of State
for the Home Department.

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INTRODUCTION.

So much misapprehension and confusion have arisen during the past year concerning the working of the Inebriates' Acts that it appears advisable to place on record a short sketch of the influences that culminated in the original provision, and, later, the extension, of legal power for the care and control of habitual drunkards. Furthermore, the Act of 1898 differs to such an extent from that of 1879, both in fundamental principle and method of administration, that it becomes still more necessary in this, the first combined report, to bring information up to date, and by so doing pave the way for a more intelligent comprehension of subsequent annual returns.

The confirmed drunkard is the subject of an uncontrollable impulse—a moral insanity—and is incapable, unaided, of leading a sober decent life. He becomes a useless member of society, he brings disgrace and ruin upon all dependent upon him, he adds to the burden of the ratepayer by increasing pauperism, lunacy, and disease, and at the same time constitutes himself a standing menace to the community by reason of his tendency to crime.

As in other varieties of moral alienation, the diseased inebriate has either no desire for reform, or no power to carry the desire into effect.

Experience has taught that, under suitable treatment, good results are obtainable, and recovery possible in a fair percentage of cases.

There are three primary essentials in the treatment of an inebriate—(1) Removal from his surroundings; (2) Abstention from liquor for long-continued periods; and (3) Treatment with such medical and general therapeutic remedies as are necessary for the recovery of impaired function and tissues. All three principles are essential, and to neglect one of them jeopardizes the ultimate result. It is almost impossible to remove a drunkard from his surroundings, keep him (often forcibly) from liquor for long-continued periods, and maintain continuous medical treatment and supervision, except in institutions specially designed for the purpose.

In view of an inebriate's characteristics, his vacillation and determination to obtain liquor at any cost, such an institution must be endowed with power to detain; otherwise it is useless, but such power should not be exercised unless guaranteed free of abuse by proper supervision.

Some inebriates are conscious of their condition and are willing to avail themselves of means towards recovery, while others are unconscious or even regardless of the necessity for reformation.

Recognition of these indications resulted in the first attempt at legislation, viz., The Habitual Drunkards Act of 1879.

This measure, when presented as a Bill to Parliament, contained two main provisions, one "Voluntary," for dealing with cases of men who realised their condition and were willing, on their own initiative, to take steps towards recovery; the other "Compulsory," to apply, with proper procedure and under suitable safeguards, to that larger class of drinkers who, whether appreciating their condition or not, refuse to be placed out of reach of liquor, or decline to take advantage of any means calculated to exercise restraint over their habits.

Unfortunately, opinion in the country was not ripe for such a far-reaching measure, and so the Habitual Drunkards Act when it entered the Statute Book was shorn of its most important feature—the power to commit an inebriate to suitable care and control, when such action was proved to be necessary in the interest of patient, family, or the community at large.

The Act, as it became law, authorised the establishment of "Retreats," but made it essential that a person must voluntarily desire to enter such a Retreat.

To ensure fulfilment of this condition, the Act required an intending patient to sign a "Request for Reception," and directed the signature to be attested by two Justices,

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who were, in addition, required to certify that the applicant at the time of signing appeared to understand fully the consequences of his action.

Experience proved these formalities to be unnecessarily severe and somewhat cumbrous ; for instance, it was found difficult to secure the presence of *two* magistrates, except in open court. Later amendments have modified this requirement, so that the applicant's signature now needs attesting by one Justice of the Peace only—an improvement which obviously tends to facilitate admission and to remove any necessity for publicity.

The fundamental principle of the 1879 Act remains still the same, viz., purely voluntary admission. Any person desiring to enter a Retreat under its provisions must do so of his own free will and accord.

The present position of the Act, its practical working and the causes of its limited operation, are fully discussed in the body of this Report.

It becomes necessary now briefly to direct attention to later legislation. The new Act of 1898 is a marked advance on former measures. It acknowledges the necessity of applying compulsion to those drunkards who are unable or unwilling to reform. It is true that this compulsory power will have a strictly limited range. It is only capable of application at present to such cases as have, by repeated public exhibition of their condition, or by crime, brought themselves within reach of legal procedure. Nevertheless, it insinuates the principle of compulsory detention, and rightly directs its aim primarily against the worst offenders.

Judges have for years deplored the amount of crime caused by drunkenness. Section 1 of the Act in its application to crime, caused or contributed to by drink, empowers them to add to, or substitute for, penal sentences, reformatory treatment when such a course appears advisable. Such a power is of inestimable value, especially in the case of first offenders, when a crime is shown to have been committed owing to mental degradation or during a fit of frenzy or temporary insanity caused by drink. Many a crime has been committed under the influence of drink by persons to whom such action in their sober senses would be revolting. There is a possibility that a year or two of reformatory treatment might result in recovery and a decent future life. Committal to prison only serves to increase moral degradation, to brand the individual for the future as a convict, and to lessen immensely the possibility of his becoming subsequently a decent member of society and living a regular life.

And with regard to cases under section 2, it has been evident for many years past that some further power was required to deal effectually with the multitude of cases that form so large a proportion of police court work. Until the passing of this Act the drunkard who was repeatedly guilty of violence, assault, and street disorder could not be dealt with otherwise than by fine or short terms of imprisonment. It became evident that these repeated short terms of imprisonment were not long enough to afford time for any mental or physical improvement to result from withdrawal of liquor. On the expiration of his sentence the prisoner was thrown once more amongst old associates before the desire for excess had time to become modified, or be replaced by a wish to live a sober life. On the contrary, the temptation usually recurred at a period when the morbid desire is generally acknowledged to be greatest, viz., within the first three or four weeks after withdrawal of a drunkard's liquor.

Furthermore, it is to be remembered that the drunken recidivist is insane, a typical instance of moral degradation. Repeated committal to prison only serves to increase or confirm that degradation without affording any possibility of improvement or amelioration of his condition.

The only apparent advantage accruing from routine committal to prison was the amount of security given to the general public by the temporary removal of one whose conduct was an offence against decency and morality. This advantage still obtains under the Act of 1898, to an increased degree, with, in addition, the probability of rescuing some of the offenders from their habits, and thus conferring permanent benefit upon both the individual and the State.

The Act contemplates the establishment of two distinct types of institution, viz., "State" and "Certified" Inebriate Reformatories.

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Details concerning those certified Inebriate Reformatories already in working order, and inmates under treatment therein, are duly recorded under the section of this report reserved for such institutions. The information at present available with regard to Certified Reformatories is, however, meagre and incomplete, and, dealing as it does with but part of a year, must be considered as merely an interim statement.

From the very commencement of the practical application of the Act it was evident that, in order to extract the utmost advantage from its provisions, some modification of its original intention was greatly needed.

The Act provides for the committal of two classes of inebriates: (1) (Section 1) those convicted of indictable offences committed under the influence of drink, or attributable to drink; and (2) (Section 2) habitual drunkards convicted repeatedly of drunkenness and disorderly conduct.

A brief observation of examples of both classes who have been received into Reformatories has been sufficient to show that after the removal of liquor each class is equally amenable to discipline. Of those inmates who have proved difficult of control, where any difference does exist, a larger proportion of those admitted under Section 2 requires a more stringent provision for safe custody and maintenance of discipline than of those admitted under Section 1.

It will appear therefore that a large majority of cases under Section 1 can be treated with impunity in association with Section 2 cases in Certified Reformatories, and without recourse being had to the more strictly penal measures that would of a certainty be associated with a State Reformatory.

If the reformatory character of the treatment of inebriates is to have full play, institutions must be made as little like prisons as possible. This will apparently be quite feasible with a minimum of penal or restrictive measures, provided that facilities for greater security are available elsewhere to control the small proportion (probably 10 per cent. or 15 per cent. of all committals) giving continual special trouble to managers of Certified Reformatories.

The natural conclusion appears to follow that the State Inebriate Reformatory of the future should not be designed specially for the reception of cases under Section 1, but be adapted for the reception of all intractable cases committed under either section, and so allow amenable inmates the benefit of treatment under the lightest possible conditions of physical restraint.

At the close of 1899 there were six or eight cases in which insubordinate conduct was undoubtedly hampering the work of Reformatories.

When these cases become sufficiently numerous to render such a course advisable, it will be worth while to consider the establishment of a State Reformatory on the above lines; and its organisation will prove of the greatest value in securing the smoother working of Certified Reformatories.

R. WELSH BRANTHWAITE.

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TWENTIETH REPORT OF THE INSPECTORS OF RETREATS UNDER THE INEBRIATES ACTS, 1879 TO 1899, FOR THE YEAR 1899.

No Act of Parliament has perhaps met with so much adverse criticism and so many accusations of inutility as the Habitual Drunkards Act of 1879. These criticisms have been partly justified owing to slow development; but few persons are aware of the actual extent of the use of the Act and the growing acknowledgment of its value.

In this report we consider it advisable, with a view if possible of removing this impression of uselessness, to draw attention to some figures indicating more clearly the present position of the Act, and the use that is made of its provisions. Table I. shows the number of Retreats in existence and the number of patients admitted for treatment during each year since 1880.

The majority of licensed Retreats receive two classes of patients :—

1. "*Patients under the Act*"—*i.e.*, persons who have complied with statutory requirements, viz., signature by the applicant, in the presence of a Justice of the Peace, of a "Request for Reception"; and execution of a "Statutory Declaration" by two friends to the effect that the applicant is an inebriate within the meaning of the Act; and

2. "*Private Patients*"—*i.e.*, persons who do not conform to these formalities, but elect to enter upon a simple private contract binding them to conform to the rules of the Retreat, and make certain payments.

The difference between these two classes is that, in the first, the Licensee possesses legal power to detain, and in the second, the power of detention consists entirely in the forfeiture of monies paid in advance in the event of the patient leaving before the expiry of the time for which he signed. It is customary however in a retreat to require "private patients," when once admitted, to conform equally with the other class to regulations, and generally to all conditions in force in the institution. Furthermore some managers of Retreats do not encourage the admission of patients under the Act, preferring, although licensed, to receive the "private" class. It is obvious that publication solely of the numbers of patients under the Act—which has hitherto been the practice—completely ignoring those who have been admitted under the other condition, does not faithfully represent the amount of work done in these institutions. We have considered it advisable, therefore, to include in this return, as far as possible, the number of "private" patients admitted to treatment. This has proved somewhat difficult owing to the fact that some Licensees have not hitherto kept tabular records of persons who have so entered; but, with other data, we have obtained a return sufficiently approximate to give the comparative figures between each class and the total of both. The number of private patients given for 1899 is absolutely correct. The figures for previous years are probably slightly understated, a case here and there being omitted owing to imperfect records. In future years regular returns will be given, and will prove useful in determining the total number of persons applying voluntarily for admission into licensed Retreats.

Reference to Table I. will show progress, which, although slow, is markedly steady. An increase almost year by year in the number of establishments, and a similar increase in the number of patients admitted thereto, are clearly evident. The figures speak for themselves, and consequently need little comment. The increase, however, is more evident if the time over which the table extends be divided into quinquennial periods, taking in each case annual averages, thus :—

Years.	Retreats Licensed.	Beds Available.	Patients Admitted.
1880–1884	2·6	30·8	71·6
1885–1889	6·2	87·6	154·4
1890–1894	7·4	117·2	211·6
1895–1899	13·0	204·0	329·2
1899 alone	15·0	276·0	437·0

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We venture to point out that this maintained advance, after twenty years' experience, is the strongest evidence of utility, and sufficient proof that Retreats are meeting the requirements of an increasing demand for institution treatment and control of inebriates. Notwithstanding all this, having regard to the enormous number of persons who do not enter Retreats, persons who would otherwise be benefited by treatment, it is impossible to deny that the accommodation provided is absurdly disproportionate to the conditions existing, and that only a small percentage of drunkards take advantage of available provision. In view of these circumstances it becomes necessary to ask why the Act has not fully justified the hopes of its promoters. The first and most important reason is the necessity of obtaining the patient's consent to treatment. The restriction to voluntary admission has limited enormously the practical value of the Act. Only a small minority of inebriates realize their condition, and a large percentage of those who do realize it stolidly refuse to entertain the idea of voluntarily submitting themselves to withdrawal of liquor, and to restraint. The majority of cases that have entered "voluntarily" under this Act have done so from pressure of a *force majeure* exercised by parents, wife, husband, or friends, a force that does not appear on the surface of statistics, but is nevertheless of the most potent character.

A superintendent of many years' experience estimates the number of *bonâ fide* voluntary admissions at "certainly not more than 5 per cent. of all entries," and states further that "true voluntary admission is very rare indeed." The consequence is that, what with the impossibility of gaining consent, and the absence of any lever, financial or domestic, to induce it, the large majority of drunkards is untouched by the provisions of the Act,—and may bring financial ruin upon their families, and general misery to their surroundings without any force being available to arrest or control their actions. The Act is only now gaining ground from a steadily increasing familiarity with the idea of entry into retreats, and the gradual removal of the dread with which, in the early days, such a proceeding was contemplated. The number of cases now scattered about the country, in which benefit has resulted from residence in such institutions, also helps to make the work more popular.

A second important deterrent of the beneficent influence of this Act has undoubtedly been the absence of adequate accommodation for the reception of destitute cases. Private individuals, and at least one philanthropic body, have considered it worth while to cater for the wants of persons who are able to pay for treatment and control. But amongst all the philanthropic efforts of the day, no person or body of persons have so far undertaken to provide a chance of recovery for the host of victims who are financially unable to help themselves. The very nature of drunkenness is antagonistic to self-support. The majority of subjects do not even come under notice, or cannot be persuaded to apply for admission until they have been thrown out of employment, are in misery from impecuniosity, or are inflicting such misery upon others. Hundreds of persons to-day would willingly submit to treatment but for their inability to find the means for admission to an institution. Good industrial Retreats for destitute cases, supported by voluntary aid, the work of patients, and by contributions from local authorities, are quite within the range of practical politics, and would go far towards supplying an urgent need. At the present time, some twenty years after the passing of the Act, there is literally no accommodation anywhere in the kingdom for destitute males, and very little for females.

There are other minor points, but the foregoing are the most important factors limiting the value of earlier inebriate legislation.

Tables II. and III. are designed to show particulars concerning Retreats already in existence. The first is practically in the form in which such information has been presented in previous Reports, and includes details concerning admissions, discharges, and deaths of patients during the year. Table III. has been added to supply additional information, the absence of which has caused constant inquiry, and will be found useful for general reference. It also serves the purpose of showing the fairly adequate provision for the well-to-do classes, as compared with the paucity of accommodation for the impoverished and destitute.

During 1899 we have paid 61 visits of inspection to Retreats and buildings proposed for adaptation; we have advised in all cases of difficulty, investigated complaints of patients, and in the organisation of new institutions have given all possible assistance. Our visits were mostly unannounced, and made at irregular intervals. We have found on the whole a satisfactory condition of things, and we are of opinion that in

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the majority of institutions no effort is being spared to treat patients with a view to obtaining good reformatory results. Every attention, at each visit, has been paid to the sanitary condition of the buildings themselves, and we have no complaint to make as to efficiency in this respect.

The varied character of cases received into Retreats, both from financial and social standpoints, necessitates considerable difference in the Rules and Regulations enforced. We think, however, that the difference, in some respects, is greater than it need be, and we would suggest that Licensees should consider the advisability of more unity of action, and the possibility of advantage arising from occasional conference and discussion amongst themselves concerning these points of difference. The work is an important one, and it is essential to obtain by experience the best method of treatment, *i.e.*, the method which produces the largest percentage of good results.

At the present time many Licensees appear to be working entirely on their own lines, with the best intentions, certainly, but in directions that could with advantage be modified by the experience of others.

For instance, there are important points for discussion concerning the granting of liberty to patients whilst under treatment, especially in relation to the conditions under which such leave should be granted, and to what extent it is found advisable, and warranted by results. We think also that some uniformity of action is called for in connection with the enforcement of labour in those Retreats where patients are required by regulation to employ their time.

In institutions where work is not compulsory greater stress should be laid on the fact that physical exercise is restorative as well as recreative. These suggested conferences of Licensees might well consider the question as to the best means of inducing patients to realise and accept the advantages of occupation as an essential part of treatment.

The question also of the best medical and general treatment should be thoroughly ventilated, so as to afford opportunity for the less experienced to learn from collaborators who have been longer in the work.

The united experience and sympathy of those in constant touch with the practical side of the work would furthermore be of great value to the Department in considering all questions tending towards the enlargement of the scope, and improvement in the working, of the Inebriates Acts.

With regard to the general treatment of patients in Retreats there is for example a point the importance of which is insufficiently realised by some Licensees, viz., the indiscriminate and occasionally uncontrolled use of non-alcoholic beverages. An insane desire for intoxication, whether inherited or acquired, is undoubtedly the *fons et origo* of all confirmed drunkenness. The body has, however, in the developed inebriate condition become habituated to excess of fluid *quâ* fluid, and a pseudo necessity for its continuance has been established.

Habit in this way constitutes an important phase not to be ignored. Were a patient to confine himself after treatment solely to non-alcoholic liquor possibly little harm would result from this abnormal desire; but experience has proved that in cases where the habit of drinking large quantities of fluid has been uncontrolled, such individuals revert almost unconsciously to alcoholic beverages. The necessity, therefore, for accustoming patients to the spare use of any fluid is obvious. We think further that non-alcoholic preparations similar in appearance and taste to beer and wine should be totally excluded from Retreats.

New Retreats.

No new Retreats were actually established during 1899, but three were organised during that year, have since received their licence, and are now in full working order.

Buntingford House, Buntingford—Resident Medical Superintendent and Licensee, Dr. Norman Davis—is a praiseworthy attempt to organise an institution for the reception of male patients at lower rates than is possible in other Retreats. The enforcement of labour, in addition to benefiting patients, as intended by the regulation, also allows some financial advantage to the Licensee, thereby enabling him to make considerable reduction in fees. Some difficulty may arise at first, at any rate until the principle of compulsory

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labour has come into more common use. We think however that it is a step in the right direction. With few exceptions, too little attention is paid in Retreats to physical work as an important therapeutic agent in the production of good results.

Corngreaves Hall, Cradley Heath, has been opened under the auspices of the Worcester Diocesan Branch of the Church of England Temperance Society, with a Committee as Licensees, appointed by the Branch. The Chairman is The Right Rev. the Lord Bishop of Coventry; Secretary, J. H. Broscomb, Esq.; with a Matron as resident Licensee. Dr. Arkwright, of Halesowen, is the visiting Medical Officer. The scheme is a purely philanthropic one, and is based on the principle of receiving patients on the lowest possible terms necessary to meet expenses. It is intended for the reception of inebriate women of any religious denomination. Cases are admitted between the ages of 20 and 45, and no person will be received, except by special permission, for a shorter period than 12 months, while every effort will be made to induce patients to sign for the full terms allowed by the Act. "Private" patients will also be admitted, but preference will always be given to those persons who are prepared to sign a properly attested application as provided by the Act. Every attention has been paid to the remedial value of employment. This is enforced by regulation, and facilities have been provided for both outdoor and indoor occupations. All officials of the institution must be total abstainers.

Addiscombe Lodge, Croydon—Medical Superintendent and Licensee, Dr. John M. Hobson—has been opened as a Private Retreat for ladies of the upper and middle classes.

Admissions to Retreats.

The number of persons who duly signed under the Act and were admitted to Retreats during 1899 exceeded by 23 the number received during the previous year. This difference would have been considerably greater had it not been for the fact that very early in the year the Royal Victoria Homes, Brentry and Horfield, ceased to take voluntary cases, the Managers having adapted those buildings for the reception of committals from Police Courts under the 1898 Act. This action alienated 70 beds from retreat work, beds too that, owing to the low rates charged, would otherwise have been continuously full.

It will be seen that 203 persons signed under the Act. An analysis of the periods for which they signed shows the following result:—

2 Years.	21 Months.	18 Months.	12 Months.	9 Months.	6 Months.	4 Months.	3 Months.	6 Weeks.
13	1	3	103	5	36	4	37	1

Twelve months is apparently the most favoured period, and taking all cases together is probably the most satisfactory. The average of all is equal to 9·8 months per case. The same particulars cannot be given for "private" patients, seeing that entries in that class do not specifically sign for any definite period, and, if they did, there exists no power to bind them down to it.

We shall, however, make some effort in future reports to obtain the average time that such cases remain under treatment, with a view of discovering to what extent signature under the Act influences the period of residence. The vacillating character of inebriates would indicate that without the power of detention accompanying signature under the Act, the periods would as a general rule prove to be shorter and consequently less effective.

Incidentally we would here state our opinion that in the majority of cases signature under the Act is advisable. Such a course places in the hands of a Licensee legal power of detention and strengthens his hands in dealing with difficult cases. We should, however, be sorry to advise any interference with entry under private contract, for undoubtedly amongst unselected admissions there are many patients who, when liquor is once withdrawn, require a minimum of restraint, and are perfectly amenable to little more than

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moral influence. Whether or not these very amenable cases produce the best results is open to question, for they are generally essentially weak and easily influenced for good or bad. Notwithstanding this there is always the probability, even in such cases, that long continued abstinence from alcohol will strengthen the moral nature sufficiently to produce good results.

Discharges and Deaths.

Two hundred and five patients were discharged during the year. Of this number, 160 left their respective Retreats at the end of the period for which they signed, and 45 were discharged by justices in virtue of the power vested in them under Section 12 of the Act. Table IV. shows, in detail, particulars of all discharges, and in the case of discharges under Section 12 the reason for which they were obtained. We have had occasion in four instances, after investigation, to suggest to Licensees the advisability of discharge being granted to certain patients ; in each case the discharge was duly obtained in accordance with our representations. No circumstances have arisen of sufficient urgency to require the interference of the Secretary of State in this direction.

One death occurred during the year due to disease directly attributable to chronic alcoholism.

Leave of Absence.

Leave was granted to patients, under Section 19, in 34 cases for more or less temporary causes necessitating a few days' absence. We are of opinion that Licensees would do well to give more consideration to the value of this proceeding, and use it more freely towards the termination of the longer periods for which some patients sign. This naturally applies only to cases where such period has been sufficiently long to be of practical value, and the granting of leave should even then be matter for careful consideration, and be held out as an inducement to good behaviour and personal effort towards cure. We think, for instance, in the event of a patient signing for 12 months, given good conduct during residence and a probability of successful result, that the last two or three months might with advantage be more commonly spent on leave, in charge of some responsible person. This proceeding introduces a useful transition stage between a condition of restraint and full liberty. The patient should be carefully informed that breach of the conditions under which such leave is granted renders him liable to a revoked licence, and compulsory return to the Retreat. This knowledge should add some moral support in tiding over the first month or two of his return to temptation.

Escapes.

Ten patients escaped from retreats. Of these, 5 returned of their own accord, 3 were brought back under warrant and remitted by justice's order to their respective institutions, and in two instances, although warrants were issued, and every effort made, the patients were not recovered.

Unlicensed "Homes."

We have been dealing hitherto with returns received from duly licensed Retreats. There is, however, another class of institution in existence, conducting the work of Retreats, but unlicensed under the Act of 1879. This class, so far as it is possible to judge, equals in number, or even exceeds those licensed. Some of these "Homes" we have reason to believe are excellently conducted, and if brought under the provisions of the Acts would be of inestimable value to the work ; others, on the contrary, do not bear so good a character. They take little interest in the future welfare of their cases, are insanitary, overcrowded, situated in unsuitable neighbourhoods, and are without proper facilities for exercise and employment. Having an Act to legalise the detention of inebriates for purpose of cure, it is difficult to understand why managers do not avail themselves of its protection and general provisions.

This especially applies to those that we know are conducted on sound principles. We are endeavouring, with some success, to induce the managers of the best of these institutions to apply for a licence, and we have every reason to expect that before the end

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of the current year some of them will have done so. It is impossible for intending patients, or their friends, to discriminate between the good and bad without some guarantee of suitability such as is provided by licensing and regular inspection ; in the meantime such persons would be well advised when selecting an institution to confine themselves to those which are properly licensed under the Act, and included in the list annexed to this report.

It is fully recognised that, to treat and control inebriates properly, some restriction of personal liberty is essential, but such interference should only be allowed under safeguards against abuse. To render this possible and legal, the Habitual Drunkards Act, 1879, was placed upon the Statute Book. It seems to us, therefore, an anachronism that under the circumstances institutions should be permitted to exist, exercising restraint over individuals, without the precautions and supervision evidently contemplated by legislation.

Some unlicensed " Homes " have remained so, owing to an erroneous impression that licensing would entail the necessity of managers receiving a class of cases undesired by them. We would take this opportunity of emphasising the fact that such a course still leaves the Licensees absolutely unfettered in refusing or accepting cases, and does not even require them to take patients who have signed under the Act, unless the managers so desire. We wish to make every effort to induce managers of unlicensed Homes to take advantage of the Act. If we fail, then the question of compulsory licensing should be a matter for serious consideration in any future amendment of the Act. We are of opinion that all " Homes" taking more than one or two patients should be subject to central inspection and supervision.

Books and Forms.

Certain new and modified books have been approved for the use of Retreats. The most important of these is the Case Book. It has been felt for a long time past that some Licencees were hardly taking sufficient interest in the records of cases passing through their hands. Others again, although evincing the desired interest, were producing returns differing so greatly in particulars and methods as to render collective statistics almost an impossibility, The object desired, therefore, in prescribing this book for universal use is to ensure uniformity in all future returns from Retreats, and so guarantee the production of massed information from all institutions such, for instance, as has been for many years past published by the Dalrymple Home (*see* Appendix C.). We would like to go further and emphasise the advisability of special attention being paid to the records of results of treatment. The chief interest after all centres in results, and very useful information might be gained from the collective experience, properly tabulated, of all Licensees. We are convinced that reliable information is obtainable concerning the majority of cases discharged from Retreats, and that it is only a matter of arrangement between Licensee and patient, or friends, to receive a report of result, say at the end of 12 months after return to full liberty. Information so obtained might be arranged as follows :—

Doing well.
Improved.
Not improved.
Insane.
Dead.
Not heard from.

Adoption of this course would throw light upon many questions at present obscure, give tangible evidence for consideration of the comparative value of different methods of treatment, practically set at rest the doubt in the minds of some concerning the curability of a fair percentage of inebriates, and later give a more reliable figure for comparison with the results of the reformatory treatment of committed cases. A side issue also of considerable interest would be the comparative results of treatment in each sex. It is almost universally believed that women inebriates are less likely to gain advantage from treatment than men. We are inclined to the opinion that this impression is an erroneous one, and we should welcome any evidence gained from more perfect returns to place the question beyond doubt.

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Two books, the "Register of Admissions" and the "Register of Discharges," have now been modified and amalgamated so as to form one complete record—the "Register of Admissions and Discharges."

A "Journal" has been added for the use of the Licensee. It is intended that in this book shall be entered details of all important occurrences affecting administration, especially those relating to the escape of patients, refractory conduct, or the introduction on to the premises, or taking, of liquor by patients, together with a note of measures in each case used to prevent recurrence.

With regard to forms, some slight alterations have been made in the wording of the "Statutory Declaration" so as to include cases that are only "at times" incapable of managing themselves or their affairs, and also to render it possible for some drug habitués to be treated as patients "under the Act." The form of "Request for Reception" has also undergone some modification to bring it into accord with recent amendments of the 1879 Act. Forms for leave of absence and discharge under Section 12 have also been approved and are now in use. Specimen pages of books and samples of these forms will be found in Appendix B. Arrangements have been made with Messrs. Eyre & Spottiswoode to supply them to Licensees at stated prices.

All notifications required by Act or Regulation to be made to the Home Department must in future be made on special forms supplied for this purpose on application to us by Licensees of Retreats.

Regulations for the Conduct of Retreats.

In accordance with the recommendations of the Departmental Committee some changes have been made in the Official Regulations for the conduct of Retreats. These, in their amended form, appear in full as an Appendix to this report and require but little notice here in the way of comment. The first regulation is entirely new. Some difficulty has resulted from the divided responsibility of licensing Retreats and their subsequent control. The Act of 1879 gives power of licensing into the hands of local authorities while it makes the Home Department afterwards responsible for supervision and control.

Now that greater attention has been drawn to the subject many authorities have formed special committees to administer their powers under the Act. Licensing therefore in future will be a matter of more careful consideration, and for that reason less difficulty is likely to arise.

Nevertheless, it has been considered advisable that the authority responsible for the subsequent working shall also have some power with regard to initiation. The first Regulation has been approved and inserted for this purpose.

When the new power of contribution to, or establishment of, Retreats, given to Councils by the Act of 1898, has come into more general use, it will be a matter for consideration in future amendment whether the power of licensing shall not rest entirely in the hands of the central authority, so as to prevent the anomaly of Councils licensing their own institutions.

Under another amended Regulation, power is given to the Licensee of a Retreat to appoint some person to act as permanent deputy, with the consent of the authority granting the license.

Certain additional duties are laid upon Licensees in connection with the notification of discharges under Section 12 of the Act.

Such varied conditions exist in Retreats, in connection with the class of cases admitted, the fees paid for treatment, and so on, that it has been found impossible to make any definite Regulations with regard to the enforcement of labour in all such institutions. The Regulation therefore, as approved, leaves it to those managers of Retreats, who desire to enforce labour, to submit details of the amount and kind of work to be required of the patients, so leaving the circumstances of each application to be treated on its merits.

A similar principle has been made to apply to requests for transfer of patients from one Retreat to another.

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Conclusion.

In conclusion, we desire to express our conviction that existing Retreats are doing an excellent work. A work, furthermore, which should excite the sympathy of all who are interested in the reduction of drunkenness and its attendant evils, whether such motive be from reasons humanitarian, scientific, or economic.

We would point out also that the demand for accommodation has increased year by year, and that all indications point to still further extension.

Lastly, that every effort should be made to induce philanthropic bodies, aided by local authorities, to establish institutions designed for the reception of destitute cases. This, in our opinion, is the greatest requirement of the present day, and a factor that will control all future advance in the work.

H. W. HOFFMAN.

R. WELSH BRANTHWAITE.

Home Office,

10th October, 1900.

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APPENDIX A.

TABLE I.

PARTICULARS OF RETREATS AND PATIENTS ADMITTED THERETO DURING EACH YEAR SINCE 1879.

YEAR.	Number of Retreats licensed.	Number of beds available for patients under the Act.	Number of patients admitted under the Act.	Number of patients admitted privately (not under the Act).	Total number of patients treated in licensed Institutions.
1880	2	14	17	14	31
1881	2	20	12	36	48
1882	2	20	25	42	67
1883	3	36	40	49	89
1884	4	64	72	51	123
1885	6	86	77	75	152
1886	5	81	73	72	145
1887	7	97	66	77	143
1888	7	94	99	77	176
1889	6	80	78	78	156
1890	7	100	109	81	190
1891	7	101	115	80	195
1892	6	99	124	83	207
1893	8	134	129	98	227
1894	9	152	133	106	239
1895	10	151	130	112	242
1896	12	172	166	124	290
1897	14	208	183	141	324
1898	14	213	180	173	353
1899	15	276	203	234	437

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TABLE II.

PARTICULARS OF RETREATS LICENSED AND PATIENTS ADMITTED THERETO DURING 1899.

NUMBER OF RETREATS . . . . . 15.

Name and Situation of Retreat.	Name of Licensee.	Date of Licence or Renewal of Licence.	Patients under the Acts.							Number of Patients received privately, *i.e.*, not under the Acts.
			Number for which licensed.	Sex.	Number remaining on 31st December, 1898.	Number admitted during the Year 1899.	Number discharged during the Year 1899.	Deaths during the Year 1899.	Number remaining on 31st December, 1899.	
Amesbury House, Amesbury, Wilts.	Penrose J. Barcroft, M.R.C.P., F.R.C.S.	18th April, 1899	3	2 Males and 1 Female.	2	—	2	—	—	2
St. Veronica's Retreat, Chiswick	Cecilia O'Sullivan, Sarah Ann Canavan, and Mary S'Alban.	22nd June, 1899	40	Females ...	26	41	27	—	40	10
The Grove Retreat, Fallowfield, near Manchester.	Mary Hughes and Janet Morfee.	3rd August, 1899	25	Females ...	22	24	22	—	24	—
"Capel Lodge," Folkestone ...	E. Norton, M.D., L.R.C.P., M.R.C.S.	10th January, 1899	10	Males ...	1	3	3	—	1	22
Kingswood Park, near Bristol ...	T. W. Brimacombe ...	6th April, 1899	24	Males ...	13	29	27	1	14	22
Dalrymple Home, Rickmansworth.	F. S. D. Hogg, L.R.C.P., M.R.C.S.	17th July, 1899	20	Males ...	9	22	25	—	6	27
High Shot House, Twickenham.	Albert Ezra Neale, M.B., B.S.	27th April, 1899	12	Males ...	4	11	12	—	3	29
Street Court, Kingsland, R.S.O., Herefordshire.	W. F. Walker, J.P., and Benjamin Watt Sanders.	16th October, 1899	10	Males ...	2	6	4	—	4	15
Tower House Retreat, Westgate-on-Sea.	James Cheese, L.R.C.P., M.R.C.S., and T. Bridgeman Smith.	15th February, 1899	20	14 Males and 6 Females.	11	29	28	—	12	22

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TABLE II.—*continued.*

Name and Situation of Retreat.	Name of Licensee.	Date of Licence or Renewal of Licence.	Patients under the Acts.							Number of Patients received privately, *i.e.*, not under the Acts.
			Number for which licensed.	Sex.	Number remaining on 31st December, 1898.	Number admitted during the Year 1899.	Number discharged during the Year 1899.	Deaths during the Year 1899.	Number remaining on 31st December, 1889.	
Aston Hall, Sutton Coldfield ...	*E. F. Freeland, George Loveridge, and H. J. D. McKay (Resident Licensee).	9th December,1899	10	Males ...	—	6	4	—	2	20
Royal Victoria Homes, Horfield, near Bristol.	Rev. H. N. Burden and Mrs. Burden.	29th March, 1898	20	Females ...	20	3	23	—	—	2
Royal Victoria Home, Brentry, near Bristol.	Rev. H. N. Burden and Mrs. Burden.	9th January, 1899	50	Females ...	—	18	17	—	1	—
†Spelthorne, St. Mary, near Feltham.	Charles W. Driver, Esq., and Sister Edith Teresa (Sister in charge).	12th November,1898	10	Females ...	1	1	1	—	1	52
Wandsworth : 10 and 12, North Street.	Elizabeth A. Blackmore ...	26th July, 1899	12	Females ...	5	6	6	—	5	10
Stretford, near Manchester : Prospect Hill, Urmston Lane.	Elizabeth Pritchard ...	3rd August, 1899	10	Females ...	3	4	4	—	3	3
Total			—	—	119	203	205	1	116	236

The following Retreats have been opened since 31st December, 1899 :—
Buntingford House, Buntingford, Herts. Dr. Norman Davis, licensed for 35 Males.
Addiscombe Lodge, 71, Lower Addiscombe Road, Croydon. Dr. J. M. Hobson, licensed for 7 Females.
Corngreaves Hall, Cradley Heath, Staffs. Worcester Diocesan Temperance Society, licensed for 20 Females.

* Licence transferred to S. J. Freeland, Geo. Loveridge, and John J. Quirke, M.R.C.S., 19th May, 1900.

† This licence expired on November 12th, 1899, and has not been renewed.

TABLE III

Containing further Details concerning Existing Retreats.

Retreat.	Weekly Fees Charged.	Any Free Patients Admitted.	Whether Occupation is "Enforced by Regulations," or only "Encouraged."	Social Class for which Provision is made.	Whether open for Admission of Private Patients in addition to Patients under the Act.	Minimum Period for which Patients are Admitted.
Amesbury House	£ 4 s. 4 d. 0 to £ 6 s. 6 d. 0	—	Encouraged	Upper and middle class	Both conditions	3 months.
St. Veronica's	0 10 6 „ 4 4 0	—	„	All classes	„ „	12 months.
The Grove	0 7 6 „ 2 2 0	2	Work made a condition of admission.	All classes	Patients under Act only ...	12 months.
Capel Lodge	3 3 0 „ 5 5 0	—	Encouraged	Gentlemen only ...	Both conditions	1 month.
Kingswood Park	2 2 0 „ 5 5 0	—	„	Upper and middle class	„ „	3 months.
Dalrymple Home	2 2 0 „ 5 5 0	—	„	„ „ „	„ „	3 months.
High Shot House	2 12 6 „ 5 5 0	—	„	Gentlemen only ...	„ „	3 months.
Street Court	6 6 0 —	—	„	Upper class only ...	„ „	6 months.
Tower House, Westgate ...	3 3 0 „ 6 6 0	—	„	Upper and middle class	„ „	{ Under Act, 3 months. Private, 6 weeks.
Aston Hall	3 3 0 „ 7 7 0	—	„	„ „ „	„ „	3 months.
Northlands	4 3 4 „ 8 6 8 (monthly)	—	„	Middle class	„ „	6 months.
Prospect Hill	1 11 6 „ 3 3 0	1	„	Upper and middle class	„ „	12 months.
Spelthorne, St. Mary ...	0 5 0 „ 2 2 0	Occasionally	Work made a condition of admission.	All classes	Upper class only, admitted under the Act.	12 months.
Buntingford	1 5 0 „ 2 5 0	—	Enforced by regulations	Middle class	Both conditions	3 months.
Addiscombe Lodge	2 2 0 „ 3 3 0	—	Encouraged	Upper and middle class	„ „	No minimum.
Royal Victoria Homes* ...	— —	—	—	—	—	—
Congreaves Hall	0 5 0 „ 1 1 0	3	Enforced by regulations	Middle and lower class	Both conditions	12 months.

* Horfield and Brentry have been adapted for Reformatory purposes, and are not at present taking voluntary cases.

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TABLE IV.

PARTICULARS OF CASES DISCHARGED FROM RETREATS DURING 1899.

Efflux of time			160
Under Section 12 :—			
Urgent private affairs requiring presence elsewhere		22	
Refractory conduct, rendering continued residence detrimental to the interests of other patients, and to the general welfare of the Retreat ...		11	
Ill health, rendering further detention inadvisable		5	
Further detention considered unnecessary		2	
Insane		2	
No funds to continue payments		1	
Informality of papers		2	
			45
			205

APPENDIX B.

THE INEBRIATES ACTS, 1879 TO 1899.

RULES FOR RETREATS LICENSED UNDER THE ABOVE ACTS.

I, the Right Honourable Sir Matthew White Ridley, being one of Her Majesty's Principal Secretaries of State, by virtue of the power conferred on me by the above Acts, do hereby revoke the rules for Retreats made on the 10th day of August, 1888, by the Right Honourable Henry Matthews, then one of Her Majesties Secretaries of State, and in their place I do hereby make the following rules for Retreats licensed under the above Acts :—

Application for Licence.

1. Before application is made to a local authority by any person or persons desirous of obtaining a licence to conduct a Retreat under the Inebriates Acts, the following particulars with respect to the proposed institution shall be previously submitted to the Secretary of State for approval.

(1.) The name proposed for the retreat.

(2.) The names of persons applying for a licence.

(3.) A description and plan of the site.

(4.) Plans of building, showing area, height, and arrangement of rooms, the external offices and conveniences attached to the buildings, and all necessary details as to safe custody, water supply and baths, fire escapes, drainage, ventilation and sanitary arrangements.

The plans must exhibit :—

(*a.*) Adequate bedroom or dormitory accommodation, day-rooms, and proper provision for the employment of inmates. Dormitories should show 600 cubic feet of air space per head and separate bedrooms at least 720 cubic feet, but no calculation for height of room is to exceed 12 feet, and in each case conditions must exist for efficient ventilation.

(*b.*) Separate and suitable room or rooms to be used, in case of necessity, for the treatment of cases of illness.

Forms.

2. The forms numbered I. to VI. in the Appendix A hereto shall be used for the purposes set out in the headings thereof, and in lieu of the forms set out in the Second Schedule of the Act of 1879. Forms VII. and VIII. are for the use of Licensees making application to justices for "Discharge" or "Leave of Absence" in the case ot patients detained under the Acts, and in accordance with sections 12 and 19 respectively of the Act of 1879.

Plans.

3. The plan or plans submitted to the justices according to the Form No. 1 of Appendix A shall be hung up in some conspicuous place in the retreat.

On the plan or plans the rooms to be appropriated to the use of inebriates, hereafter termed "patients," shall be distinguished from those used by the licensee and his family.

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Superintendent and Deputy.

4. The resident licensee of a retreat shall, wherever possible, be a registered medical man.

He may from time to time appoint a deputy, who shall be a person approved by the Inspector, to assist him in the execution of his duties and in the general management of the retreat.

The local authority granting a licence for a retreat may give consent to the appointment of such deputy as a permanent officer, so that he may at any time be ready to act during the temporary absence of the licensee in accordance with the conditions of section 3 of the Inebriates Act, 1888.

Books.

5. The licensee of the retreat shall provide and keep the following books, namely :—

(*a.*) The "Register of Admissions and Discharges."

(*b.*) The "Case Book," in which the medical attendant, or the licensee, if acting as medical attendant, shall enter the name, sex, and previous occupation of every patient admitted into the retreat, and other particulars.

Subsequent entries shall be made in the case book recording the progress of each case, and also all bodily ailments, injuries, or accidents happening to the patients; the medicines and alcoholic stimulants (if any) administered; and the special treatment adopted for the cure of the patient, with the result. Such entries shall be made monthly or oftener.

The licensee shall take such steps as are reasonably practicable to learn the history of his patients after they have been licensed or discharged, and the information thus procured shall be entered in the Case Book in the words "Doing well," "Improved," "Not improved," "Not heard of," "Insane," or "Dead," as the case may be, together with any particulars of interest that may have been ascertained.

The "Register" and "Case Book" shall respectively be in the forms, and contain entries of the particulars given and indicated in the Schedules B and C hereto annexed.

(*c.*) A "Licensee's Journal," in which shall be entered, under date, particulars of all matters of importance occurring in the retreat, noting therein all instances of infraction of discipline or offences by patients, servants, or persons unconnected with the institution, especially detailing all circumstances associated with the obtaining of liquor by patients, either by their own efforts or by aid of other persons, and the means taken to prevent recurrence. Should any physical restraint or coercion be employed, a full detail of the circumstances shall be at once entered in the journal. A note shall also be made at the commencement of every month stating the number of private patients accommodated in the retreat, in addition to those duly admitted "under the Acts."

(*d.*) A "Visitors' Book," with which shall be bound up Queen's Printer's copies of the above Acts, which shall be for the use of the Inspector, and the Inspector shall enter therein such observations and report as he may think fit, and a copy of all such entries shall, within three days after the date thereof respectively, be transmitted by the licensee to a Secretary of State by post.

(*e.*) The licensee shall keep a list of all patients residing in his house, or who may be absent on license, together with the payments made by or for each of them.

Notices.

6. In addition to the notices required by the Acts, the licensee shall, immediately after the death or within two days of discharge of any patient in the retreat, send by post notice of such death or discharge to the clerk of the local authority and to a Secretary of State.

The licensee shall, within two clear days, send by letter to the Inspector notice of every licence permitting a patient to be temporarily absent from the retreat, and such notice shall give the name and address of the person with whom the patient is to reside during such absence.

He shall also, immediately send notice by letter marked "Urgent" to the Inspector of every escape of a patient, and, on subsequent return, of the return of such patient to the retreat, stating whether or not a warrant was issued.

Admissions and Discharges.

7. Copies of admission forms sent to the Secretary of State, in accordance with section 11 of the Act of 1879, must be accompanied with exact information of the date of entry of the patient to whom such admission forms apply, and in notifying the discharge of a patient from a retreat to the Secretary of State, the licensee shall, in all cases, state the cause of such discharge.

In the event of discharge from any cause other than that of "efflux of time," the licensee shall, in notifying such discharge to the Secretary of State, send detailed particulars of the circumstances that led to his application to a Justice of the Peace for an order under section 12 of the Act of 1879. Whenever possible, notice of an intended application for discharge of a patient, duly signed by the licensee of the retreat, shall be sent, at least seven days before such application is made, to the Inspector, to the person by whom the last payment for the patient was made, and to one at least of the persons who signed the Statutory Declaration under which the patient was admitted to the retreat.

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When a licensee receives notice that application is about to be made to procure the discharge of a patient under section 18 of the Act of 1879, he should furnish the Secretary of State with an immediate report of any circumstances which he considers should properly be laid before the Judge, but which are likely to remain undisclosed unless he intervene.

Inspection.

8. All parts of the retreat shall at all times be open to the Inspector, and shall be shown to him at his visitation, and every patient detained in the retreat shall be produced to him. The licensee shall give full and true information to the Inspector in reply to such inquiries as he may deem necessary, and lay before him all books, registers, lists, and documents by the Acts or hereby required to be kept, and at all times furnish him with copies of any entries which he may require.

The licensee and the medical attendant respectively shall, whenever required by the Inspector, furnish him with a special report upon the mental and bodily condition and conduct with reference to abstinence from intoxicating liquor, or otherwise, of any patient on the register of the retreat. The Inspector's annual report shall be a detailed and independent criticism of the working of each retreat during the year, and if the licensee neglects to provide facilities for employment, or allows the establishment to fall below a proper standard of discipline or efficiency, the Inspector shall report to this effect to the Secretary of State, who at his discretion will consider the advisability of communicating with the licensing authority.

Employment.

9. The licensee shall submit to the Secretary of State, with the other rules of the establishment, details of the kind of work to be required of the patients, and of the amount which shall be regarded as a task required by health, and of any punishments proposed for idleness and refusal to comply with such rules.

Inebriates being or becoming Insane.

10. If any patient admitted into or detained in the retreat shall be found to be, or shall while in the retreat become, insane, the licensee shall immediately give notice thereof by letter marked "Urgent" to the Inspector, to the person by whom the last payment for such patient was made, and to one at least of the persons who signed the statutory declaration under section 10 of the Inebriates Act, 1879. He shall also, by giving notice to the relieving officer of the union or parish in which the retreat is situated or by procuring an urgency order, take the necessary steps to the intent that the patient so being or becoming insane may forthwith be placed under proper care and control as a lunatic.

Separation of Sexes.

11. The licensee shall, in cases where patients of both sexes are received in a retreat, make due provision for the separation of the sexes at night, and at all but defined hours in the daytime.

Treatment.

12. The licensees shall give, when required by the Inspector, full information as to the medical or other curative treatment of the patient; but if the Inspector is dissatisfied with the methods adopted, the circumstances of each particular case shall be fully reported by him to the Secretary of State, who, if he shall consider such course necessary, will make due representation to the Licensing Authority, directing their attention to the matter.

Transfer.

13. When application is made to the Secretary of State to order the transfer of a patient from one licensed retreat to another, the licensee shall afford all information that may be called for by the Inspector to enable him to advise upon the request.

Visits of Friends.

14. Patients in a retreat may at all reasonable times be visited by their relatives and friends: Provided always, that if in any case the licensee shall think that the visit of any particular person or persons would at any particular time, or generally, be prejudicial to the patient proposed to be visited, or would be likely to hinder the cure of such patient, he may prohibit such visit.

In the case of a prohibited visit the licensee shall give his reasons for refusal, in writing, to the visitor, and an entry of such reasons shall be made in the "Journal," and a copy thereof sent to the Inspector within 24 hours.

The Inspector may at any time give an order, in writing, under his hand, for the admission to any patient of any relative or friend of such patient of either sex (or of any medical practitioner or legal adviser, whom any such relative or friend of such patient shall desire to be admitted to the patient), and such order of admission may be for a single admission or for an admission for a limited number of times, or for admission generally at all reasonable times.

The licensee may, if he shall think fit, direct that interviews between patients and visitors of the opposite sex shall take place in the presence of an official or attendant of the retreat.

Patients' Letters.

15. The licensee shall deliver letters and parcels addressed to patients in his retreat, and shall post or forward all letters written by the patients of his retreat according to the intentions of the writers, except in cases in which he is authorised to open or detain them by Regulation approved by the Secretary of State under Rule 20, *post*.

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Provided always, that all letters written by a patient and addressed to a Secretary of State, to any judge of the High Court of Justice, to a county court judge, to the local authority or clerk thereof, or to the Inspector, shall be forwarded unopened and without delay.

Public Houses.

16. A patient detained in a retreat shall not, without written permission from the licensee of the retreat, enter any public house or other house where intoxicating liquors are sold.

Intoxicating Liquors.

17. Without special written authority from the medical attendant of a retreat, a patient shall not take any intoxicating liquor, or sedative, narcotic, or stimulant, drug, or preparation.

Prosecutions.

18. It shall be the duty of the Inspector to report to the Secretary of State any serious offence against the provisions of these Acts, or these Rules, which may be brought to the notice of the Inspector, with a view to take such action in relation thereto as the Secretary of State may direct.

Attendants

19. Every attendant and servant shall be duly informed of the offences specified in the Acts, and of the penalties attached to the commission thereof. They shall also be furnished with a copy of the "Regulations and Orders" authorised by the Secretary of State, and it shall be the duty of the licensee to prosecute every attendant offending against the Acts or these Rules, and, in case of conviction, to dismiss the offender from his service.

Regulations and Orders.

20. "Regulations and Orders" (not inconsistent with these Rules) for the domestic arrangements of the retreat and the management and treatment of the inmates thereof shall, within one month from the granting of the licence, be drawn up by the licensee, and by him be submitted to the Inspector; and such "Regulations and Orders," when approved by the Secretary of State, shall be adopted and strictly observed in the conduct of the establishment.

APPENDIX A.

Retreats for Inebriates.

Form No. I.

Application for Licence of Retreat.

The Inebriates Acts, 1879 to 1899.

To the County (or Borough) Council [as the case may be].

I, the undersigned, hereby apply for a licence for the house described below, as a retreat for the reception of male [or female, or male and female] persons, being inebriates within the meaning of the above mentioned Acts, to be detained and treated as patients therein.

And I, the undersigned, undertake to reside in the house and give my personal attention to the management, care, employment, and treatment of the patients.

I also undertake to give two months' notice to the Council and the Secretary of State if I shall determine to resign this licence or not to apply for its renewal.

I also undertake not to apply for a transfer of this licence without previous notice to the Secretary of State.

(Signed) Name,
Address,
Description,
(Witness) Name,
Address,
Description,

House to be described with the following [among other] particulars: and a plan on a scale of not less than one eighth of an inch to a foot to accompany the description, and be referred to therein:—

(*a.*) Dimensions of every room.

(*b.*) Arrangements for separation of sexes.

(*c.*) Quantity and nature of land available for exercise and recreation or employment of patients.

(*d.*) Descriptions of work provided for patients, and arrangements made for directing and enforcing work.

(*e.*) Extent of applicant's interest in the House.

Rules.

1. An application may include two or more houses belonging to the same person or persons, provided no one of the houses is separated from another or others of them otherwise than by land in the same occupation and by a road, or in either of those modes.

2. The application is to be made not less than thirty days before the meeting at which it is to be considered.

3. The clerk of the local authority is to give notice of the application having been made, by advertisement published in a newspaper circulating in the district of the local authority six days at least before the meeting at which the matter will be considered.

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FORM No. II.

Licence.

The Inebriates Acts, 1879 to 1899.

County / [or borough] of } This is to certify that in pursuance of the above mentioned Acts the { County / [Borough] } Council of the county [or borough] of , upon the application of A. B., a copy of which application is indorsed on this licence, have licensed and do hereby licence the said A. B. to use the house described in that application for the reception of persons, being inebriates, as follows; namely, male [or female, or male and female] patients for calendar months from this date.

Dated this day of 18 .

(Signed)

Clerk of the Local Authority.

RULES.

1. A fee of ten shillings is to be paid for the licence.

2. The clerk of the local authority, within ten days after a licence has been granted, is to give notice of the granting thereof by advertisement published in a newspaper circulating in the district of the local authority, and is to send a copy of the licence to the Secretary of State.

FORM No. III.

Request for Reception into Retreat.

The Inebriates Acts, 1879 to 1899.

To

I, the undersigned, hereby request you to receive me as a patient in your retreat at in accordance with the above-mentioned Acts, and I undertake to remain therein for at least, unless sooner duly discharged, and to conform to the regulations for the time being in force in the retreat.

Signature of applicant,

The above-named signed this application in my presence, and at the time of his [or her] so doing satisfied myself that he [or she] was a person to whom the Inebriates Act, 1879, applies, and I stated to him [or her] the effect of this application, and of his [or her] reception into the retreat, and he [or she] appeared perfectly to understand the same.

Dated this day of

Justice for the Peace for the County [or Borough] of

Applicant's Name in full,

Address,

Description,

FORM No. IV.

Request for Retention in Retreat.

Inebriates Acts, 1879 to 1899.

To

I, the undersigned, hereby request you to retain me as a patient in your retreat at in accordance with the above-mentioned Acts, and I undertake to remain therein for at least, unless sooner duly discharged, and to conform to the regulations for the time being in force in the retreat.

Signature of applicant,

The above-named signed this application in my presence, and at the time of his [or her] so doing I stated to him [or her] the effect of this application, and of his [or her] reception into the retreat, and he [or she] appeared perfectly to understand the same. I was [We were] also satisfied by the certificate of [Her Majesty's Inspector, or Medical Witness], that the further detention is likely to be of benefit to the patient.

Dated this day of

Justice of the Peace for the County [or Borough] of

Applicant's Name in full,

Address,

Description,

FORM No. V.*

Request for Re-admission into Retreat.

The Inebriates Acts, 1879 to 1899.

To

I, the undersigned, hereby request you to re-admit me as a patient in your retreat at in accordance with the above-mentioned Acts, and I undertake to remain therein for at least, unless sooner duly discharged, and to conform to the regulations for the time being in force in the retreat

Signature of applicant,

The above-named signed this application in my presence, and at the time of his [or her] so doing I stated to him [or her] the effect of this application, and of his [or her] reception into the retreat, and he [or she] appeared perfectly to understand the same. I was [We were] also satisfied by the certificate of [Her Majesty's Inspector, or Medical Witness] that another period of detention is likely to be of benefit to the patient.

Dated this day of

Justice of the Peace for the County [or Borough] of

Applicant's Name in full,

Address,

Description,

---

* This form must only be used when the applicant has been detained in a retreat under the Acts within the five years immediately preceding the date of the present application.

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FORM No. VI.

STATUTORY DECLARATION IN VIEW OF ADMISSION.

The Inebriates Acts, 1879 *to* 1899.

We,

severally, solemnly, and sincerely declare that . who is an applicant for admission into the is an Inebriate within the meaning of the Inebriates Act, 1879,* and we severally make this solemn declaration, conscientiously believing the same to be true, and by virtue of the Statutory Declarations Act, 1835.

Taken and declared severally at
in the County of
this day of 189 .
Before me
(*a.*) *J.P. for the County Borough of*
(*b.*) *a Commissioner of Oaths*

To be signed by two friends of the patient before a Magistrate or a Commissioner.

* An "Habitual Drunkard" (or Inebriate) is defined in the Act of 1879 as meaning a person who is by reason of habitual intemperate drinking of intoxicating liquor, *at times* dangerous to himself or herself or to others, or incapable of managing himself or herself, and his or her affairs. The Secretary of State is advised that "intoxicating liquor" may include liquors other than alcohol, if their habitual intemperate use brings the consumer into the condition of an "Habitual Drunkard."

FORM No. VII.

INEBRIATES ACTS, 1879–99.

Discharge.

42 & 43 Vict., ch. 19, sect. 12.

I hereby, on the request in writing of , Licensee of the Retreat known as grant discharge from under the provisions of the above Acts to for the following reasons :—

Dated this day of , at , in the county of

Justice of the Peace for the of

FORM No. VIII.

INEBRIATES ACTS, 1879–99.

Leave of Absence.

42 & 43 Vict., ch. 19, sect. 19.

I hereby grant leave of absence to , a patient at present detained under the provisions of the above Acts, in the Retreat known as .

This permission is granted at the request of the Licensee, , and, unless sooner revoked, shall remain in force for a period not exceeding , under the following conditions, viz. :—

(1) The said shall abstain entirely from drinking intoxicating liquors.

(2) The said shall reside with , at , who undertakes to be responsible for the patient, and communicate immediately with the Licensee of the Retreat should h escape or refuse to be restrained from drinking intoxicating liquors.

(3) On notice of revocation of this Leave of Absence the said shall forthwith return to the Retreat.

Dated this day of , .

Justice of the Peace for the of .

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APPENDICES B and C.

SHOWING FORM OF REGISTER OF ADMISSIONS AND DISCHARGES, AND PARTICULARS OF CASE.

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RETREAT_____ APPENDIX B.—SHOWING FORM OF REGISTER

Date of previous Admission (if any).	No. in Order of Admission.	Date of Admission.	Christian and Surname at Length.	Sex. M.	Sex. F.	Age.	Condition as to Marriage. Married.	Condition as to Marriage. Single.	Condition as to Marriage. Widowed.	Condition of Life.	Previous Place of Abode.
	1	1880. Jan. 3	William Johnson ...	1	—	29	—	1	—	Stockbroker... ...	—
	2										
	3										
	4	1881. Apr. 5	Jane Smith	—	1	45	1	—	—	Wife of Tailor ...	—

RETREAT_____ APPENDIX C.—PARTICULARS

NAME.	Date of Admission.	Age.	Nationality.	Religion.	Education.	Previous Residence.	Occupation.	Living with Family. Married.	Living with Family. Single.	Living with Family. Widower or Widow.	Living Alone. Married.	Living Alone. Single.	Living Alone. Widower or Widow.	Relatives Intemperate. Father	Mother.	Brother.	Sister.	Grandfather.	Grandmother.	Uncles.	Aunts.

RECORD OF

Date.	Condition of Patient.	Treatment.
First Day		
Second Day		
Third Day		

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OF ADMISSIONS AND DISCHARGES.

Date of Application and of Justices Attestation.	Condition of Health on Admission.	Date of Discharge or Death.	How Discharged.	Died.		Observation.
				Age at Death.	Assigned Cause of Death.	
1879. December 30 ...	Good	1880. June 21	Effluxion of time.			
1881. April 1	Feeble	1881. September 9 ...	... ...	46	Phthisis.	

OF CASE.

Relatives Insane.	Intemperance, Regular or Periodical.	Frequency of Periods.	Duration of Drinking Habits.		Violent, Cheerful, or Gloomy, when Intoxicated.	Kind of Liquor Drunk.	Ordinary Habits, Social or Solitary.	Ever been in Insane or Inebriate Asylum.	Tobacco.	Opium or other Drugs.	Sleep.	Had Delirium Tremens? How Often?	Exciting Cause.	Complicating Disease?	General Health.
			Moderate Drinking.	Excessive Drinking.											

TREATMENT.

Remarks.	Restraint or Coercion.	Result.

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APPENDIX C.

Summary of the Five Hundred and Sixty-one Cases Discharged since the Opening of the Dalrymple Home.

Number of Patients :—		
Under the Act		266
Private		295
		561
Periods for which Patients have entered :—		
Under the Act—		
Entered for 12 months		94
„ 9 „		16
„ 8 „		4
„ 6 „		74
„ 3 „		78
		266
As Private Patients—		
Entered for 12 months		46
„ 9 „		19
„ 6 „		78
„ 4 „		9
„ 3 „		143
		295
Age :—		
Between 20 and 30 years		92
„ 30 and 40 „		275
„ 40 and 50 „		153
„ 50 and 60 „		41
		561
Average age of all Patients 36·5.		
Previous Residence of Patients :—		
England—		
London		181
Provincial		272
Scotland		41
Ireland		27
Wales		3
France		6
Switzerland		3
Cape Colony		3
Australia		3
New Zealand		1
United States		4
Canada		2
South America		7
India		3
Straits Settlements		2
Japan		1
Ceylon		1
West Indies		1
		561
Religion :—		
Protestant		540
Roman Catholic		21
		561
Education :—		
College		126
Good		394
Elementary		41
		561
Marriage :—		
Married		285
Single		250
Widowed		26
		561
Occupation :—		
Naval Officers		5
Military Officers		23
Medical Practitioners		36
Students of Medicine		5
Barristers-at-Law		8
Solicitors		28
Artists and Theatrical		8
Tutors		12
Professors of Music		5
Civil Servants		15
Clerks in Holy Orders		11
Publisher		1
Marine Merchant Service		7
Accountants		3
Auctioneers		2
Stockbrokers		11
Librarian		1

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OCCUPATION—*continued.*

Clerks	54
Land and Commission Agents	3
Underwriters	2
Engineers	17
Manufacturers	30
Distillers, Brewers, &c.	17
Builder	1
Shopfitter	1
Drapers	6
Merchants	61
Farmers	18
Commercial Travellers	9
Bankers	2
Chemists	5
Veterinary Surgeons	2
Tea Traders	2
House Decorator	1
Ship Owner	1
Engraver	1
Dentist	1
Tailors	5
Agents	3
Journalists	3
Architects	3
Naturalist	1
Gentlemen of no occupation	131
	561

FAMILY HISTORY :—

Insanitary in 40 cases.

Inebriety—

Father or Mother in 106 cases.

Grandparents (with Uncles or Brothers) in 59 cases.

Brothers in 37 cases.

Uncles in 98 cases.

No history of insanity or inebriety obtainable in 221 cases.

TEMPERAMENT :—

Nervous	359
Sanguine	111
Nervo-Sanguine	65
Phlegmatic	23
Passionate	3
	561

ASSOCIATE HABITS :—

Tobacco	478
Chloral and Tobacco	6
Morphia	6
Morphia and Cocaine	5
Opium or Chlorodyne and Tobacco	8
Sulphonal	2
No other apparent habits	56
	561

DRINKING HABITS :—

Regular	401
Periodical	156
Morphinism without Alcoholism	4
	561

FREQUENCY OF PERIODS :—

Every week	5
„ 2 weeks	10
„ 3 „	17
„ 4 „	45
„ 6 „	10
„ 2 months	35
„ 3 „	12
Very irregular	22

Average of time addicted in all cases 8 years.

DELIRIUM TREMENS :—

Patients who have had 1 attack	125
„ „ 2 attacks	67
„ „ 3 „	13
„ „ 5 „	2
„ „ 13 „	1

ORDINARY HABITS :—

Described as Social	525
„ Solitary	36
	561

KIND OF INEBRIANT USED :—

All Spirits	178
Whisky	151
Brandy	31
Gin	7
Wine	34
Wine and Spirits	52
Beer	8
Beer and Spirits	79
Various	12
Morphia and Cocaine	8
Absinthe	1
	561

PREVIOUS RESIDENCE IN OTHER RETREATS OR UNDER PRIVATE CARE :—

Once	78
Twice	42
Four times	1
Insane Asylum	2

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EXCITING CAUSE :—

Sociability	306
Nervous Shock—	
Domestic trouble	32
Business worry	32
Financial loss	3
No occupation	25
Influence of occupation—	
Commercial travelling	7
Wine and Beer Merchants	17
Cattle Salesman	1
Stock Exchange	2
Colonial Life	12
Army Life	1
Retail Corn Business	1
Overwork	36
Ill-health	47
Injury	18
Not assigned	21

COMPLICATING DISEASES :—

Phthisis	7
Chronic Bronchitis	8
Asthma	6
Chronic Rheumatism	10
Gout	14
Syphilis (Active)	11
Urethral Stricture	4
Dyspepsia (Chronic)	6
General Debility	39
Amaurosis	2
Alcoholic Neuritis	23
Renal Disease	3
Alcoholic Convulsions	16
Cirrhosis	1
Chronic Dysentery	1
Hæmorrhoids	6
Habitual Constipation	51
Æsophageal Stricture	1
Fistula	3
Ozæna	1
Varicocele	1
Diabetes	1
Delusional Insanity	1
Abductor (Laryngeal) Paralysis	1
Gonorrhœa	1

DISCHARGED :—

Efflux of time	530
Illness	9
Unsuitable for treatment	17
Further treatment unnecessary	1
Urgent private affairs	4
	561

TERM OF RESIDENCE :—

12 Months and longer	117
9 „	40
8 „	10
6 „	141
5 „	7
4 „	17
3 „	216
2 „	5
1½ „	2
1 „	6
	561

Average length of period under treatment of all patients discharged, about six and a half months.

AFTER HISTORY :—

Doing well	183
Improved	41
Not improved	189
Insane	5
Dead	41
Not heard from	102
	561

RE-ADMITTED 71

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FIRST REPORT OF THE INSPECTOR OF CERTIFIED INEBRIATE REFORMATORIES UNDER THE INEBRIATES ACTS, 1898-1899, FOR THE YEAR 1899.

The Inebriates Act, 1898, came into force on January 1st, 1899, and had therefore at the close of that year completed the first of its operation. This period is, however, only nominal, for in consequence of the many difficulties attending a new departure, the year, or at any rate the greater part of it, has proved one of education and organisation rather than one of actual work. The fact that no suitable institution for the reception of cases existed at the time of the passing of the Act, necessitated delay for organization, and some careful consideration of practical details before any reformatory could be available for use. Fully three months elapsed before the first certificate was granted, and there was still further delay before justices realised that accommodation was available, and before any local authorities had finally decided to give to the work their co-operation and support.

In future reports comparison with previous years and a record of the results of treatment will constitute the chief subjects of interest. Both are at present debarred from notice. No basis for comparison exists ; and, as to results of treatment, no inmate was granted licence or discharged during 1899.

And further, this paucity of detail becomes especially evident in dealing with financial relations. It is practically impossible at present to give any useful information concerning expenses of institution management, and consequently it becomes desirable to defer reference to all such questions until a complete year of practical work comes under consideration.

Many obstacles, in early days seemingly insurmountable, are smoothing down with experience, and it is better also to defer criticism on apparent difficulties until a somewhat longer period of active work has clearly distinguished the points calling for remedy from those capable of adaptation.

Taking these limitations into consideration, this is reduced to something in the light of an interim report dealing with a broken and incomplete period.

I propose, therefore, to confine my attention to recording some particulars concerning those institutions established and in working order at the end of the year ; to the action taken by local authorities in their adoption of the power vested in them ; to the probability of foundation of other reformatories ; and, lastly, to some details concerning cases committed for treatment during 1899.

Certified Inebriate Reformatories.

Five certificates were issued during 1899. Three—the Brentry and Horfield group —were granted to one board of management, a fourth to Duxhurst, and a fifth to St. Joseph's, Ashford. Details of each certificate are set out in Table I.

The Brentry and Horfield Reformatories.

The Brentry Reformatory for Females has the credit of being the first to receive a certificate under the Act of 1898.

The Royal Victoria Home, Horfield, served as the nucleus from which the Brentry reformatories developed. It was established in 1895 by certain philanthrophic persons, resident in Bristol, as a home for inebriate women and for the reception of female convicts during the later months of their sentence. At the time of the passing of the Act of 1898 this institution was licensed as a retreat, and was receiving voluntary cases under the Act of 1879.

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When the new powers came into operation, the persons interested in the Horfield Retreat became desirous of extending their property and of applying for a certificate to conduct a reformatory. The Horfield premises proved inadequate, owing to the absence of sufficient land to meet the requirements of the Act, and consequently an adjoining estate (Brentry) was purchased by the promoters of the scheme.

This additional property consisted of about 90 acres of land, upon which stood a a large residential mansion, with outbuildings, vineries, gardens, and pleasure grounds.

The house and outbuildings have been reconstructed to provide accommodation for the warden, officers, and 75 female inmates.

A block of cottages situated at some distance from the main building has also been altered to afford space for the reception of 30 male inmates.

The two divisions of the institution are absolutely distinct, being separated by nearly the full extent of the property, and hidden from each other by a natural formation of the ground, and by a broad strip of woodland.

Further additions to the institution are under consideration, with a view to affording accommodation for the reception of an increased number of inmates of both sexes.

It was anticipated by the promoters that many county and borough councils would be willing to contribute towards the foundation of Brentry in lieu of starting their own reformatories. A scheme was therefore drawn up on the following basis:—That any council contributing £1,000 towards the original expense of establishment shall have seven beds reserved for its use for 25 years from the date of signature of the agreement; an additional sum of 3*s*. 6*d*. per head per week being also claimable by the managers from such contributing council as maintenance contribution for every inmate committed from courts within their district. A further regulation provided that, for each £1,000 contributed by a council, the authority shall have power to nominate one representative on the Board of Management.

These terms were duly placed before the councils for consideration, with the result that the following authorities have made contribution on this basis:—

———	Amount.	Beds.
COUNTIES.		
	£	
Buckinghamshire	1,000	7
Essex	1,000	7
Gloucestershire	1,000	7
Hertfordshire	1,000	7
Kent	1,000	7
Middlesex	1,000	7
Monmouthshire	1,000	7
Somersetshire	1,000	7
Surrey	1,000	7
Sussex (East)	1,000	7
Staffordshire	1,000	7
Worcestershire	1,000	7
Warwickshire	1,000	7
BOROUGHS.		
Bath	1,000	7
Bristol	2,000	15
Birkenhead	1,000	7
Birmingham	2,000	15
Brighton	1,000	7
Leicester	1,000	7
Newport	1,000	7
Reading	1,000	7
West Ham	1,000	7
Wolverhampton	1,000	7

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Each of the above councils has appointed a representative on the Board of Management, which is now composed chiefly of such members. The whole undertaking has, therefore, virtually become an institution controlled by public bodies.

Three separate certificates have been granted to this Board, one for the female, and one for the male portion of Brentry; and a third for Horfield. The latter house, being considered unsuitable for full certificate, permission has been granted for its use as a reception house for the main institution. The three divisions are being conducted jointly as the Royal Victoria Homes. The certificate for the male portion was only granted just before the close of the year, and no male inmate had then been admitted.

The Board of Management seem fully alive to the responsibilty of their work, and are endeavouring gradually to create such machinery as seems best calculated to elevate the character of inmates and to secure the best result.

Duxhurst Reformatory.

Lady Henry Somerset's association with inebriate reform work is generally known. For many years Duxhurst has been conducted under her supervision as a private home for the reception of voluntary cases. The institution is arranged as a colony of separate cottages, each holding from six to eight patients. It is pleasantly situated amongst the Surrey hills, and all surroundings are conducive to recuperation of physical and mental health.

When the Act of 1898 rendered compulsory committals from police courts possible, Lady Henry Somerset set apart two cottages and made application for a certificate to receive cases under that Act, which was duly granted.

The principle upon which Duxhurst is conducted is one of personal influence, with employment of as little physical restraint as possible. The method undoubtedly works admirably with voluntary cases, and it is a matter of interest to watch how far the principle can be applied to the lower and more depraved class with which the later Act deals. In this matter sufficient time has not yet elapsed to warrant an expression of opinion.

The original intention with regard to Duxhurst was to allow the use of available beds to any council in England willing to pay 7*s.* per week for cases committed from its district. Shortly after the certificate was granted, however, the London County Council acquired by agreement the use of the beds, and with one or two exceptions they have been filled by London cases.

St. Joseph's Reformatory.

This is a Roman Catholic institution controlled by the Sisterhood of the Good Shepherd. This order is an extensive one having branches in many counties. Its efforts are devoted chiefly to rescue work amongst women, to the care of female convicts during the latter part of their sentence, and to the conduct of reformatories and industrial schools for children. There are many buildings belonging to this order set apart for these purposes throughout England.

Having incidentally had considerable experience with drunkenness in connection with rescue work, these workers considered that the establishment of a certified inebriate reformatory would come well within the scope of their reform efforts, especially taking into consideration the large number of committals who would possibly be, or profess to be, members of their own church. A large house at Ashford was acquired, together with land to the extent of about 45 acres. The house has undergone considerable changes, and now possesses accommodation for 75 female inmates. A laundry, some large dormitories, and a chapel have been added to the building, and the existing rooms enlarged for dining, work, and recreation. Medical treatment and restraint from liquor receive every attention; but great reliance is placed by the managers upon the power of religious influence, and every effort is made to use this to the fullest advantage for the future welfare of cases placed under their charge.

The reformatory is open for the reception of Roman Catholic women committed from any court in England or Wales, provided the local authority in whose jurisdiction the court is situate is willing to contribute 7*s.* per week towards the expense of maintenance.

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The Action of Private Institutions.

It is evident from the foregoing that great credit must be given to philanthropic bodies for initiative action towards effective administration of this Act.

The reason for this is plain. Local authorities and public bodies must move cautiously as becomes guardians of the financial and general interest of a community; whereas the energy required in any philanthropic work is generally supplied by one or two persons in whom trust is placed to carry out any special work. Reformatory work so far has been no exception. The Brentry group of reformatories, and their development from a small nucleus, have been due to the untiring energy of the Warden. Duxhurst has been the work of Lady Henry Somerset and her indefatigable co-worker, the Superintendent of the colony; and St. Joseph's, Ashford, has resulted from the self-denying efforts of three or four members of a hard-working Sisterhood.

There is evidence on all hands that time will see adequate provision made, but it should be fully recognised that, but for the work of these individuals, the intervening period would have presented much greater difficulty than has really occurred.

The Action of Local Authorities.

Many considerations have caused delay in action taken by local authorities towards establishment of, or contribution to, reformatories under the Act. With the exception of a small minority, the more influential bodies have, with common consent, agreed upon the necessity of provision. The difficult question has been what best to do in the interests of all concerned. This has been further complicated by the unreliable nature of returns giving the probable number of cases to be provided for, and by the fact that, although an appreciable number of suitable subjects for committal are known to exist, that number is in some districts apparently too small to warrant the establishment of an independent institution.

To meet these latter cases provision exists in the Act to allow two or more councils to combine for the purpose of establishment; but, when examined with a view to practical application, the Act, whilst recognising the necessity of combined action, is found to be somewhat deficient in effective machinery to facilitate such action.

This deficiency has been and is at the present moment the cause of much indecision and inaction. The Lancashire County Council recognised the difficulty of corporate action with its boroughs under existing statutory powers, and considered it desirable to apply for special power to bring into being a workable combination. Sooner or later it may be found advisable to make some such power applicable to any combination of councils desirous of acting in concert. In the meantime, however, the possibility exists of effective combination between county councils and county borough councils. It is only when non-county boroughs desire to join the combination, as separate contributing authorities, that the chief difficulties arise. Matters are greatly simplified when non-county boroughs are rated with the county in all matters regarding reformatory establishment; such boroughs can subsequently contribute towards the maintenance of inebriates committed from courts within their district.

A county council can borrow money to buy land for the purpose of an inebriate reformatory under Section 69 (1) (*b*) of the Local Government Act, 1888, and a borough council can borrow for the purpose under Section 9 (2) of the Inebriates Act, 1898.

The Local Government Act, 1888 (Sections 81 and 82), further provides for the appointment of joint committees by county councils for any purpose in respect of which they are jointly interested. Joint committees so formed can buy and hold land; in fact they can, without reference to the electing councils, do everything that such councils can do, except borrow money or make a rate. The costs of such committee would be defrayed in the proportion agreed to by the councils interested, and the accounts would be audited as if they were county council accounts. A county borough council is in all these matters in the same position exactly as a county council.

A scheme would, therefore, appear to be quite feasible, based upon the following suggestions:—

1. Reformatory establishment and management to be vested in a committee to consist of members appointed by each of the contributory councils on some equitable basis of representation.

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2. Division of expenses of such reformatory into establishment, renewal, and detention.

(*a.*) Establishment, to mean and include all capital expenditure incurred in the purchase, building or extension, and the furnishing of the new institution or any part thereof.

(*b.*) Renewal expenses, to include the cost of maintaining, repairing, or renewing the buildings and furniture.

(*c.*) Detention expenses, which shall mean and include the actual expenses of the maintenance of any person detained in the institution and all expenses not otherwise defined.

3. *The establishment and renewal expenses* should be paid by each of the contributory councils in proportion to their respective rateable values, and for this purpose the valuation made under Section 33 of the Local Government Act may be taken.

4. *The detention expenses* of each patient, after deducting the Government contribution, and other receipts, should be paid by the council of the area from which such patient is sent.

5. The amounts payable by the councils respectively should be certified from time to time under the hand of the chairman of the joint committee, and the books of the institution should be open at all times to inspection by any one of the councils.

Failing any such arrangement it is quite feasible for one central authority to take upon itself the responsibility of organisation, other councils of surrounding districts agreeing to send their cases upon a "boarding out" scheme of payment. Such payment, when added to the Treasury grant, should make a total sufficient in amount to cover the cost of maintenance in each particular case, and leave a balance to be credited to the original capital establishment charge and renewal expenses of the institution.

The general conclusion appears to be that by one or other scheme the difficulties of institution establishment and management, even without fresh legislation, are not insurmountable.

Taking into consideration all the difficulties that have presented themselves, the comparatively short time that has elapsed since the passing of the Act, and the necessarily slow movement of public bodies, the list of those councils who have taken and are taking action is a considerable one. Reference has already been made to those authorities, 23 in number, who have contributed to the foundation of the Brentry Reformatories. Details of each contribution appear in the list previously given, and little further comment is necessary. The only point of interest arising is the apparent want of uniformity in the participation of municipal boroughs in a county council's contribution. All boroughs are "authorities" under the Act, and are consequently liable to be made separate contributing authorities. The participation of a municipal borough in a county council contribution would appear to depend upon whether the contribution in question is paid out of an ordinary county rate or from a special county rate to which no borough contributes. It is evident that both methods of payment have been employed by different councils in contribution to Brentry. Table II. shows the details of county contributions in reference to the boroughs entitled and not entitled to use beds. The difference will be apparent by contrasting the action of the Kent Council with others. It will be realised that as no boroughs participate, the contribution by the Kent County Council is practically limited to agricultural and sparsely populated areas, excluding all the more closely aggregated districts where the contribution is likely to be of value.

In addition to those councils that have made definite contributions to Brentry, others, pending action on their own part, have sent isolated cases to Ashford and Duxhurst, on payment of about 7*s.* per head per week for each case committed from their districts. This has been done for instance by Cardiff, York, London County Council and Corporation of London, Middlesex County Council, Kent County Council and others.

Some schemes for independent action are in course of development. The London County Council has purchased a large estate at Farmfield, near Horley, Surrey, and is adapting the buildings thereon for reformatory purposes to serve as a nucleus for future extension, when sufficient demand indicates such necessity.* To supply immediate

* *See* p. 39.

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requirements the London County Council, as soon as accommodation became available, contracted with Ashford and Duxhurst for the reception of inmates, with the result that up to December 31st, 1899, fifty-six cases had been committed, and received for treatment, from courts within the district of the council.

The Lancashire County Council and its Boroughs, after conference and discussion, arrived at the conclusion that proper action would be facilitated by possession of special power to organise a central Board on the same lines as their existing Asylums Authority. With this object they promoted the Inebriates Acts Board Bill in Parliament, asking for power to constitute a body to be composed of representatives of County and Borough Councils, to form a Central Authority under the Inebriates Act, the Board so formed to have power to expend money to a definite extent and exercise all power under the Inebriates Acts given to Local Authorities. This Bill duly became law, and under the local power so obtained a Lancashire Inebriates Board has been formed, consisting of 18 representatives of the County Council and 25 members of County Boroughs. All the County Boroughs in Lancashire have joined the Board except Oldham. Direct power is given to the authority so constituted to borrow a sum not exceeding £50,000, for the purposes of the Act, without the necessity of obtaining the sanction of the Local Government Board. Matters of detail are now under consideration, and action has already been taken in the direction of establishment of suitable reformatories.

With regard to Yorkshire, a Conference of County and Borough Councils was held at Leeds on October 9th, 1899, to consider what action could be taken. Numerous resolutions were passed advocating joint action and appointing a Committee to report, and, if necessary, to formulate a scheme. Difficulties in effective combination have been met with throughout; but a draft outline scheme has now been prepared, and is under discussion.

Durham County appointed a Committee to consider the question of reformatory accommodation and confer with representatives from its County Boroughs. At a subsequent conference it was resolved that establishment of a reformatory was desirable either independently of or in conjunction with the northern counties. A joint meeting afterwards took place between representatives of the County Councils of Cumberland, Westmoreland, Northumberland and Durham. After much discussion it was decided that "a combination of local authorities was impracticable owing to the absence from the Act of provision for the appointment of a Board of Management." The Durham Council has, therefore, decided to build for its own county, and the matter has been referred to a Committee with "Instruction to recommend a site and prepare plans for the erection of an inebriates home for the county."

Cumberland and Westmoreland have also had the matter under consideration, but, as they apparently have an insufficient number of probable committals to warrant the establishment of an institution independently, they are awaiting the possibility of obtaining accommodation for their cases in one or other of the reformatories about to be established by adjoining authorities.

South Wales forms a further centre of activity. Cardiff Borough Council and Glamorganshire County Council have both made efforts to bring surrounding authorities into combination, but without success. The former authority has, however, resolved to organise a reformatory for the South Wales district and receive cases from the areas of surrounding authorities on payment for maintenance. With this object a Committee has been appointed for selection of sites, preparation of plans, and for general consideration of details.

Wiltshire made an early effort to arrange a scheme of combination, but the matter in this instance fell through, chiefly from absence, in the opinion of the Committee appointed to consider the subject, of statutory power to carry it into effect.

There is a movement on foot now for joint action between Hampshire and other southern counties, but at present it is not known officially whether any definite scheme has been formulated.

It is evident, therefore, that a general willingness exists to provide accommodation, and it is probable that sooner or later these schemes or some modification of them will develop into being.

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Action by Magistrates.

Acceptance by Magistrates of the principles of the Act has been general throughout the country. Many favourable expressions of opinion have emanated from justices when in conference or acting in judicial capacity. Magistrates as a whole appear anxious to take full advantage of the Act as soon as reformatories are available, and many a chairman of justices has, in the name of his Bench, given voice to the hope that the demand for space may be adequately supplied in the near future.

Table III. is constructed to show the Courts from which cases were committed during 1899, the number of cases committed from each court, and the sentences passed.

The absence of any court from this list, and the predominance of London cases, is no criterion as to willingness or otherwise of presiding justices to commit under the Act; for the large majority of courts in the kingdom are still unable to sentence to reformatory treatment owing to want of accommodation for cases.

This difficulty will, however, gradually disappear as beds become available.

With regard to the sentences that have been passed it is gratifying to note that the tendency is decidedly in favour of the longer terms. No expert can tell the length of time necessary for good result in any particular case, a justice therefore cannot be expected to do so. Full power should be given to reformatory authorities (under the supervision of the Home Department) to retain cases if necessary, for the longer periods allowed by the Act, rather than run the risk of a continual repetition of sentences that might probably be otherwise avoided. The power of licensing, and the lenient (probably too lenient) view taken by the Departmental Committee as to the period when licensing should be possible, afford every possibility of liberation at the earliest possible moment to those cases giving any prospect of good result.

Concerning Committed Cases.

Eighty-eight committed cases were received into existing institutions up to December 31st, 1899, seven being sentenced under Section 1 and 81 under Section 2 of the Act.

Table IV. shows the distribution of these cases in the several reformatories.

Table V. shows the details of offence and sentence in relation to the seven cases convicted and admitted to reformatories under Section 1.

Table VI. gives similar details of sentences in the 81 cases committed under Section 2. With regard to the summary conviction of these cases, or conviction on indictment, an analysis shows that of the above 81 cases 79 consented to be dealt with summarily, and only two refused to be so dealt with and were convicted on indictment.

An attempt has been made in Table VII. to collate information concerning previous convictions of cases committed to reformatories. This has proved a matter of considerable difficulty. It is obvious that many of the numbers shown as previous convictions are markedly understated, and indeed the majority of them only refer (especially in the London district) to sentences passed at the Court from which the cases were committed, with no reference whatever to convictions at other Courts. To qualify a prisoner for committal to a reformatory, the police are only required to prove three convictions within the previous twelve months. Nothing further is required to comply with the terms of the Act, and therefore no attempt has been made by them to obtain anything like accuracy concerning the number of previous convictions, because for judicial procedure such details are not required.

This difficulty is more evident in the London district than in the provinces, owing to the large number of Metropolitan Police Courts, Borough Police Courts, and Petty Sessions within the Metropolitan district.

In country towns the difficulty is not so great, especially when only one Court exists, and where the criminal and drunken classes are probably better known to the local police. Many cases, again, make use of a variety of names in different or the same Courts, with a view to lessening the number of recorded convictions.

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Furthermore, under the provisions of the Licensing Act of 1872, Section 12, constables have hitherto had no power to detain persons, charged with simple drunkenness, after they had become sober. Such persons have, therefore, been released on their own recognizances, and, as they often give false names and addresses, no further action can be taken. It will, therefore, be seen that, under existing circumstances, it is practically impossible to furnish strictly accurate returns concerning previous convictions.

As things develop, accuracy concerning this detail will become a matter of importance, and it would be greatly to the future advantage of the work if a permanent record could be made available, and the number of previous convictions mentioned to the Magistrate as part of the regular procedure when any person is charged under the Act.

The four succeeding tables contain some interesting details concerning age, occupation, marriage, and education of committed cases.

The average age of inmates would be much higher but for the reluctance on the part of managers of reformatories to admit cases above the age of 45 or thereabouts. This limit is fixed by some on the assumption that the older cases are less likely to obtain benefit from treatment, or that they are too hopeless to be considered worth the attempt. It is to be hoped that managers will not enforce this restriction too rigidly until time and experience have warranted the position they take up. If, later on, an age limit is proved to be desirable, on account of uselessness in attempting treatment after a certain age, or in the interest of younger cases in reformatories, then it might be well within the scope of philanthropic enterprise to establish, for the sake of humanity, a certified reformatory for the reception of aged and apparently hopeless cases. These aged drunkards are even more pitiable than younger cases, and are just as much a nuisance and disgrace to the community. We have, however, yet to discover the age when treatment becomes hopeless.

Tables IX., X., and XI. require little comment. The figures at disposal are too small to warrant inferences of any value. Of the 43 married women mentioned in Table X., 12 are described as "housewives," six as having no occupation, and the remaining 25 would appear to have been supporting themselves, or attempting to do so, in one or other of the directions indicated in the previous table.

With regard to the question of religious persuasion, 45 were described as Protestants and 43 as Roman Catholics. This disproportion of Roman Catholics to Protestant admissions is due to the fact that the greatest demand for accommodation has emanated from the London district, and that beds available for Roman Catholic committals from this area were sufficient in number to meet the demand. Duxhurst, on the other hand, provided the only accommodation for London Protestant cases, and this reformatory soon became full. A temporary block consequently occurred, and no case other than Roman Catholic could for some considerable time be dealt with from Metropolitan Courts.

The proposed establishment of "Farmfield" by the London County Council during the current year should go far to obviate the possibility of any similar occurrence in the future.

Discharge of Inmates.

One patient, after admission, was found to be insane, was consequently sent to an asylum, and subsequently discharged from under the Inebriates Acts by order of the Secretary of State. It is now arranged that similar cases in future will be dealt with under the Criminal Lunatics Act, 1884 (47 and 48 Vict. cap. 64), the patients being sent to asylums as if from prison, and subsequently, should recovery ensue, being remitted to the reformatory to complete their sentence of detention.

Up to the close of the year no case had occurred of discharge on licence or release from lapse of sentence. There are, therefore, no data upon which to found any criticism as to probable result of treatment.

Judging roughly from the general aspect of cases at present under control, it is evident, as might reasonably be expected, that the very worst type are being sent first. A large percentage of them, if not actually lunatics, are distinctly borderland cases, and as such, from a curative point of view, unlikely to produce good results, except by long continued and possibly repeated periods of treatment.

For such cases, and indeed for the majority of all committals, the estimated period laid down by the Departmental Committee at which licensing should be possible will almost certainly prove too lenient. The Committee suggested that licensing should be possible after nine months and be the ordinary procedure after twelve. Arrangements have been made by reformatories to follow this indication as closely as possible until the time proves to be too short. In this way, every chance will be given to inmates themselves to prove the necessity, or otherwise, of longer periods of detention before the granting of licence to be at large.

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10 *October*, 1900.

The publication of the above report has been unavoidably delayed owing to difficulty in obtaining some of its accompanying details. During the current year progress has been marked, especially in the interest taken by Local Authorities ; and, as a consequence, many of the schemes mentioned above are considerably advanced. The London County Council's Reformatory, Farmfield, has received its certificate and can now be added to the list of those in working order.

The total number of cases committed to reformatories now amounts to two hundred and nine, of which number fourteen are males and one hundred and ninety-five are females. Eighteen have been sentenced under Section 1, and one hundred and ninety-one under Section 2 of the Act.

Forty-two licences to be at large have been issued to inmates of reformatories. Of this number, fourteen have been revoked for breach of the condition under which the licence was granted, and twenty-eight remain in force.

The main feature of the work during this year has been the difficulty reformatories have experienced in dealing with certain cases that have proved almost uncontrollable. The number of such cases has amounted to about 10 or 15 per cent. of total committals, and their presence amongst other inmates has tended to render the maintenance of discipline at times extremely difficult. The institutions themselves are well conducted, the large majority of inmates (quite 85 per cent. of all cases) are perfectly amenable, and if only the comparatively small percentage of unruly cases could be removed, for a time at least, to some more stringent surroundings, certified reformatories would be more easily managed, and prove of greater advantage to the cases that are amenable and receptive of good influences. The establishment of a State reformatory would be of incalculable advantage and would remove a condition which is at present proving a somewhat serious obstruction to realization of the best wishes of the promoters of the Act of 1898.

R. WELSH BRANTHWAITE.

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APPENDICES.

A. Contains the Tables referred to in this Report.

B. Model Regulations approved by the Secretary of State for the Conduct of Reformatories.

C. Additional Books and a List of Forms that have been approved for use in Reformatories.

D. A Memorandum, with Suggestive Plan, issued from this Department in July 1899, to form a Basis for Discussion in the case of Local Authorities desirous of Establishing Reformatories.

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APPENDIX A.

TABLE I.

CERTIFICATES ISSUED TO REFORMATORIES DURING 1899.

Name and Situation of Reformatory.	Date of Certificate.	Managers.	Medical Officer.	Certified for the reception of—		Restrictions.
				Number.	Sex.	
Brentry, near Bristol	30th March, 1899 ...	The Rev. H. N. Burden and others (The Board of Management).	H. L. Ormerod, M.D.	75	Female ...	——
Brentry, near Bristol	13th December, 1899	(As above)	H. L. Ormerod, M.D.	30	Male ...	——
Horfield, near Bristol	22nd April, 1899 ...	(As above)	W. Cotton, M.A., M.D.	25	Female ...	To be used as a "Reception House" for Brentry.
Duxhurst, near Reigate, Surrey	10th April, 1899 ...	Lady Henry Somerset...	A. R. Walters, M.R.C.S., L.R.C.P.	22	Female ...	Protestant cases only. Women of loose character not admitted, nor (if committed under Section 1 of the Act) women previously convicted of crime.
St. Joseph's, Ashford, Middlesex ...	8th April, 1899 ...	The Hon. Teresa M. Petre and Mrs. Catherine Carney.	A. J. Anderson, M.B., C.M.	75	Female ...	For Roman Catholics only.
The following Reformatory has been certified since 31st December, 1899:—						
Farmfield, Hookwood, Horley, Surrey ...	25th June, 1900 ...	Inebriates Committee of the London County Council.	C. F. Williamson, L.R.C.P., M.R.C.S.	30	Female ...	——

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TABLE II.

Councils Contributing to Brentry.

Contributing County Council.	Boroughs not entitled to use beds.		Boroughs entitled to use beds.
	County	Municipal.	
Bucks	... ...	Chipping Wycombe. Buckingham.	
Essex	*West Ham	... ...	Chelmsford. Colchester. Harwich. Maldon. Saffron Walden. Southend-on-Sea.
Gloucester	Gloucester ... ... *Bristol.	... ...	Cheltenham. Tewkesbury.
Herts	... ...	... ...	Hertford. St. Albans. Hemel Hempstead.
Kent	Canterbury	Chatham. Deal. Dover. Faversham. Folkestone. Gravesend. Hythe. Lydd. Maidstone. Margate. New Romney. Queenborough. Ramsgate. Rochester. Sandwich. Tenterden. Tunbridge-Wells.	
Middlesex.			
Monmouth	*Newport	... ...	Monmouth. Abergavenny.
Somerset	*Bath	Bridgewater	Chard. Glastonbury. Taunton. Wells. Yeovil.
Surrey	Croydon	... ...	Godalming. Guildford. Kingston-on-Thames. Reigate. Richmond.
Sussex	*Brighton Hastings.	... ...	Arundel. Chichester. Eastbourne. Hove. Lewes. Rye. Worthing.

* These Borough Councils have made independent arrangements with Brentry for the reception of cases from their district.

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TABLE II—*continued.*

COUNCILS CONTRIBUTING TO BRENTRY—*continued.*

Contributing County Council.	Boroughs not entitled to use beds.		Boroughs entitled to use beds.
	County.	Municipal.	
Stafford	Hanley... ... ... Walsall. West Bromwich. *Wolverhampton.	Newcastle-under-Lyme	Burslem. Burton-on-Trent. Lichfield. Longton. Smethwick. Stafford. Stoke-on-Trent. Tamworth. Wednesbury.
Warwick	*Birmingham ... ... Coventry.	... ...	Leamington. Stratford-on-Avon. Sutton Coldfield. Warwick.
Worcester	Dudley... ... ... Worcester.	... ...	Bewdley. Droitwich. Evesham. Kidderminster.

* These Borough Councils have made independent arrangements with Brentry for the reception of cases from their districts.

TABLE III.

Place of Conviction.			Sentences Passed.				TOTAL.
Summary Jurisdiction Courts.	Other Courts.		3 years.	2 years.	1¼ years.	1 year.	
METROPOLIS—							
Clerkenwell Police Court ...	... ...		7	4	—	—	11
Greenwich do. ...	... ...		2	—	—	—	2
Lambeth do. ...	... ...		—	—	3	—	3
Marlborough St. do. ...	... ...		1	1	—	—	2
Marylebone do. ...	... ...		—	2	—	—	2
North London do. ...	... ...		—	1	—	1	2
Southwark do. ...	... ...		—	1	—	1	2
South Western do. ...	... ...		—	5	1	—	6
Thames do. ...	... ...		9	—	—	—	9
West London do. ...	... ...		—	8	—	—	8
Westminster do. ...	... ...		1	1	—	—	2
Woolwich do. ...	... ...		1	—	—	—	1
Worship Street do. ...	... ...		1	5	—	—	6
		Carried forward	32	28	4	2	56

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TABLE III.—*continued.*

Place of Conviction.		Sentences Passed.				
Summary Jurisdiction Court.	Other Courts.	3 years.	2 years.	1½ years.	1 year.	Total.
THE CITY—	Brought forward ...	22	28	4	2	56
The Guildhall	... ...	—	1	—	—	1
	London County Sessions—					
	Clerkenwell	—	1	—	—	1
	Newington	1	1	—	1	3
PROVINCIAL—						
Aylesford, Upper South ...	... ...	—	—	1	—	1
	Berwick-on-Tweed Quarter Sessions	1	—	—	—	1
Birmingham	... ...	1	—	—	—	1
	Blackburn Quarter Sessions	1	—	—	—	1
Brentford	... ...	1	2	—	—	3
Bristol	... ...	2	—	—	—	2
Bury (Lancs.)	... ...	1	—	—	—	1
Dartford	... ...	—	—	3	—	3
	Essex County Quarter Sessions	—	1	—	—	1
Melcombe Regis	... ...	—	1	—	—	1
Much Woolton	... ...	—	1	—	—	1
Newport (Mon.)	... ...	1	—	—	—	1
Sheffield	... ...	—	1	—	—	1
	Shrewsbury Quarter Sessions	—	—	1	—	1
Tendring	... ...	1	—	—	—	1
Tipton	... ...	2	—	—	—	2
Wednesbury	... ...	—	1	—	—	1
	Yarmouth Quarter Sessions	—	—	—	1	1
York	... ...	1	—	—	—	1
WALES—						
Cardiff	... ...	—	—	—	2	2
		35	38	9	6	88

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TABLE IV.

Distribution of Cases Committed to Reformatories during 1899.

Reformatory.	Under Section I.		Under Section II.		Total.
	Male.	Female.	Male.	Female.	
Brentry and Horfield (for Females).	—	7	—	20	27
Brentry (for Males)	—	—	—	—	—
St. Joseph's, Ashford	—	—	—	42	42
Duxhurst	—	—	—	19	19
	—	7	—	81	88

TABLE V.

Details of Convictions under Section 1.

Court.	Offence.	Sentence.	
		Prison.	Reformatory.
Blackburn Borough Quarter Sessions.	Larceny, after previous conviction of felony, and habitual drunkard.	1 calendar month.	3 years.
Essex County Quarter Sessions ..	Wilfully neglecting children to the injury of their health, and being an habitual drunkard.	—	2 years.
London (N.) County Sessions, Clerkenwell.	Wilfully illtreating child to the injury of its health, and being an habitual drunkard.	—	2 years.
London (S.) County Sessions, Newington.	Neglecting children in a manner likely to cause them unnecessary suffering.	—	2 years.
Great Yarmouth Borough Quarter Sessions.	Attempting to kill and murder herself, also with being an habitual drunkard.	1 calendar month.	12 months.
Berwick-on-Tweed Borough Quarter Sessions.	Larceny (2 convictions); also with being an habitual drunkard.	2 calendar months.	3 years.
Shrewsbury Borough Quarter Sessions.	Wilfully neglecting children in a manner likely to cause them unnecessary suffering, and being an habitual drunkard.	—	1 year.

TABLE VI.

Details of Convictions under Section 2.

Year.	Found guilty of being an habitual drunkard, of having been three times convicted of drunkenness during the previous 12 months and on the fourth offence of being		
	Found drunk in a street or public thoroughfare.	While drunk guilty of riotous or disorderly behaviour.	Total.
1899	24	57	81

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TABLE VII.

PREVIOUS HISTORY OF CASES COMMITTED.

No on Register	Court of Committal	Previous Criminal Record.							Present Reformatory Sentence.
		Number of Commitments.				Number of Sentences.			
		Crime.	Drunkenness.	Prostitution.	Other Offences.	Penal Servitude.	Imprisonment.	Other Sentences.	
1	Sheffield Police Court ...	2	78	—	7	—	37	50	2 years.
2	Brentford Petty Sessions...	—	10	—	1	—	7	4	2 „
3	Clerkenwell Police Court	—	14	—	1	—	4	11	2 „
4	Bristol „ „	—	14	—	—	—	2	12	3 „
5	Blackburn Quarter Sessions	6	3	—	—	—	8	1	3 „
6	Dartford Petty Sessions ...	—	15	—	—	—	2	13	18 months.
7	Bury (Lancs.) Petty Sessions	—	23	—	—	—	23	—	3 years.
8	Southwark Police Court...	—	10	—	5	—	5	10	2 „
9	Thames „ „	—	35	1	9	—	29	16	3 „
10	Marylebone „ „	—	9	—	—	—	3	6	2 „
11	Worship Street „ „	—	—	—	—	—	—	—	3 „
12	Thames „ „	—	5	—	1	—	5	1	3 „
13	Marylebone „ „	—	7	—	—	—	3	4	2 „
14	Marlborough Street Police Court.	1	49	—	6	—	32	24	2 „
15	Clerkenwell Police Court	—	8	—	1	—	6	3	3 „
16	Brentford Petty Sessions...	—	47	—	4	—	27	24	2 „
17	Cardiff Police Court ...	—	56	—	9	—	31	34	1 year.
18	Thames „ „ ...	—	34	1	7	—	16	26	3 years.
19	Dartford Petty Sessions ...	—	22	—	2	—	11	13	18 months.
20	Clerkenwell Police Court	—	18	—	—	—	5	13	3 years.
21	Marlborough „ „	—	11	—	1	—	7	5	3 „
22	West London „ „	—	34	4	—	—	20	18	2 „
23	Clerkenwell „ „	—	31	—	5	—	19	17	3 „
24	„ „ „	—	3	—	—	—	1	2	2 „
25	South Western „ „	1	32	—	18	—	—	—	2 „
26	Tipton Petty Sessions ...	1	22	—	3	—	4	—	3 „
27	„ „ „ ...	6	32	—	14	—	17	34	3 „
28	Greenwich Police Court ...	2	45	—	2	—	32	13	3 „

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TABLE VII.—*continued.*

No. on Register.	Court of Committal.	Previous Criminal Record.							Present Reformatory Sentence.
		Number of Commitments.				Number of Sentences.			
		Crime.	Drunkenness.	Prostitution.	Other Offences.	Penal Servitude.	Imprisonment.	Other Sentences.	
29	Shrewsbury Quarter Sessions.	—	4	—	1	—	—	—	1 year.
30	South Western Police Court	2	29	—	4	—	—	—	2 years.
31	Woolwich „ „	—	9	—	4	—	12	1	3 „
32	Newport (Mon.) Petty Sessions.	3	4	—	9	—	11	—	3 „
33	South Western Police Court	—	26	—	—	—	—	—	2 „
34	Clerkenwell Police Court	1	14	—	2	—	11	6	3 „
35	Thames „ „	—	27	—	4	—	21	10	3 „
36	„ „ „	—	13	—	—	—	5	8	3 „
37	Cardiff „ „	—	12	—	3	—	—	15	1 year.
38	York (City) „ „	3	27	8	15	—	24	29	3 years.
39	Lambeth „ „	—	9	—	—	—	6	3	18 months.
40	Essex County Sessions ...	—	—	—	—	—	—	—	2 years.
41	Thames Police Court ...	—	13	—	4	—	7	10	3 „
42	Southwark Police Court ...	—	8	—	3	—	6	4	1 year.
43	Lambeth „ „ ...	—	46	—	1	—	33	14	18 months.
44	„ „ „ ...	—	10	—	4	—	9	5	18 „
45	Bristol (City) „ „ ...	1	39	—	1	—	20	21	3 years.
46	Wednesbury Petty Sessions	1	40	—	3	—	8	36	2 „
47	Much Woolton „ „	—	12	—	1	—	10	—	2 „
48	London (N.) County Sessions.	—	—	—	1	—	—	—	2 „
49	South-Western Police Court	—	14	—	—	—	—	—	2 „
50	„ „ „	1	27	—	1	—	—	—	18 months.
51	Guildhall „ „	1	54	—	18	—	57	16	2 years
52	West London „ „	1	21	—	1	—	7	16	2 „
53	London (S.) County Sessions.	—	—	—	—	—	—	—	3 „
54	Worship Street Police Court	—	—	—	—	—	—	—	2 „
55	West London „ „	—	19	—	2	—	9	12	2 „
56	Clerkenwell „ „	—	10	—	—	—	5	5	2 „
57	Greenwich „ „	—	16	1	1	—	6	12	3 „
58	West London „ „	—	33	—	3	—	19	17	2 „

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TABLE VII.—*continued.*

No. on Register.	Court of Committal.	Previous Criminal Record.							Present Reformatory Sentence.
		Number of Commitments.				Number of Sentences.			
		Crime.	Drunkenness.	Prostitution.	Other Offences.	Penal Servitude.	Imprisonment.	Other Sentences.	
59	London (S.) County Sessions.	—	—	—	—	—	—	—	1 year.
60	Westminister Police Court	—	35	1	2	—	38	—	3 years.
61	Worship Street „ „	—	—	—	—	—	—	—	2 „
62	„ „ „	—	—	—	—	—	—	—	2 „
63	Brentford Petty Sessions...	—	17	—	6	—	6	17	3 „
64	Worship Street Police Court	—	—	—	—	—	—	—	2 „
65	Clerkenwell „ „	—	11	—	2	—	4	9	3 „
66	West London „ „	—	24	—	10	—	14	20	2 „
67	„ „ „	—	28	1	—	—	9	20	2 „
68	Clerkenwell „ „	—	10	—	2	—	6	6	3 „
69	North London „ „	—	3	—	3	—	6	—	2 „
70	Clerkenwell „ „	—	3	—	—	—	1	2	3 „
71	London (S.) County Sessions.	—	—	—	—	—	—	—	2 „
72	Worship Street Police Court	—	—	—	—	—	—	—	2 „
73	West London „ „	—	12	—	—	—	—	12	2 „
74	Clerkenwell „ „	—	8	—	2	—	2	8	2 „
75	Thames „ „	—	22	—	4	—	14	12	3 „
76	Dartford Petty Sessions ...	1	8	—	—	—	3	6	18 months.
77	West London Police Court	—	14	—	1	—	1	14	2 years.
78	Thames „ „	—	13	2	8	—	11	12	3 „
79	„ „ „	—	15	—	—	—	2	13	3 „
80	South-Western „ „	—	9	—	1	—	—	—	2 „
81	North London „ „	—	10	—	—	—	2	8	1 year.
83	Westminister „ „	—	3	—	—	—	3	—	2 years.
85	Great Yarmouth Quarter Sessions.	—	14	—	—	—	—	—	1 year.
87	Upper South Aylesford Petty Sessions.	2	22	—	12	—	36	—	18 months.
88	Berwick-on-Tweed Quarter Sessions.	12	7	1	4	—	13	—	3 years.
89	Birmingham Police Court	—	41	—	8	—	20	29	3 „
90	Tendring Petty Sessions...	—	—	—	—	—	—	—	3 „
91	Melcombe Regis Petty Sessions.	—	4	—	—	—	—	—	2 „

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TABLE VIII.

Details Concerning Ages of all Cases Committed to Reformatories.

Year.	20 and under	20-30.	30-40.	40-50.	50-60.	60 and over.	Average Age of all Committals.
1899	3	18	37	23	4	3	38·8

TABLE IX.

Occupation of Cases Previous to Admission.

Occupation.	Number.
Housewives	12
Dressmakers	2
Seamstresses	2
Corset maker	1
Lace „	1
Tailoresses	2
Laundresses	6
Charwomen	10
Silver Plate polishers	1
Fur paler	1
Domestic servants	7
Hawkers	11
Fish seller	1
Flower sellers	6
Cashier	1
Factory hands	2
Book sewer	1
Drapers assistant	1
Barmaids	2
Field worker	1
Of no occupation	17
Total	88

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TABLE X.

DETAILS AS TO MARRIAGE.

Year.	Married.	Single.	Widowed.	Total.
1899	43	24	21	88

TABLE XI.

NUMBER OF CASES AMONGST COMMITTALS DURING 1899 WHO COULD :—

Neither read nor write.	Read and write imperfectly.	Read and write well.	Superior Education.	Total.
15	49	23	1	88

APPENDIX B.

GENERAL REGULATIONS FOR THE MANAGEMENT AND DISCIPLINE OF CERTIFIED INEBRIATE REFORMATORIES.

Under the provisions of the Statute 61 & 62 Vict., cap. 60.

[N.B.—These Regulations are Model Regulations, made under the provisions of the Statute 61 & 62 Vict., c. 60. The rules submitted to the Secretary of State for approval by the managers of an Inebriate Reformatory should incorporate or be based on these Regulations, subject to any modifications rendered desirable by the special circumstances of the Institution.]

THE MANAGERS.

1. (1.) Applications for Certificates shall be made in the manner prescribed in the accompanying Form. (*See* Appendix I.)

(2.) Certificates shall contain such conditions as the Secretary of State shall prescribe.

(3.) Certificates shall remain in force until withdrawn or surrendered.

(4.) The grant, withdrawal, or surrender of a Certificate shall be notified in the "London Gazette."

(5.) A Certificate shall not be surrendered until the Secretary of State is satisfied that proper arrangements have been made for the disposal of the inmates.

(6.) An application for a Certificate shall be deemed to be an undertaking on the part of the managers to feed, clothe, maintain and employ any person who may be committed to their care with their consent for the period of his sentence, subject to the regulations approved for their Institution.

2. The managers of a certified Inebriate Reformatory shall furnish the Secretary of State with a yearly statement of the receipts and expenditure of the Reformatory, in such form as may be prescribed.

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3. The managers shall acquaint the Secretary of State with any changes in the managers secretary, treasurer, superintendent, or medical officer.

4. The managers shall make applications quarterly to the Secretary of State for the Treasury Grant, forwarding the necessary particulars of the number of inmates during the quarter, and the length of time each inmate has been detained in the Reformatory.

5. On receipt of the report of the superintendent with respect to the property of any inmate, the managers shall consider whether application should be made to a County Court Judge for an Order under Section 12 of the Act; and in suitable cases shall make application accordingly, and report the result to the Secretary of State.

THE SUPERINTENDENT.

6. The superintendent shall reside in the Reformatory, and shall not be absent without due arrangement having been made to the satisfaction of the managers for the performance of his duties.

7. The superintendent shall report the reception of every inmate to the Secretary of State, sending a copy of the commitment or order of Court.

8. The superintendent shall strictly conform to the law relating to Inebriate Reformatories and to the regulations, and shall be responsible for the due observance of them by others. He shall observe the conduct of the officers, and enforce on each of them the due execution of his duties.

9. The superintendent shall keep and be responsible for a journal and such other books and records as may from time to time be prescribed.

10. It shall be the duty of the superintendent to carry out the rules as to the employment and industrial training of the inmates.

11. The superintendent shall inspect daily the whole of the Reformatory, and shall see every inmate once at least in every 24 hours. It shall be his duty to visit daily all inmates while employed at labour, and see that they are all industrious and that all orders respecting the application of labour are duly enforced.

12. (1) The superintendent shall take every precaution to prevent the escape of inmates, and shall take care that all officers are well instructed as to their duties and responsibilities in this respect and vigilant in fulfilling them.

(2) The superintendent shall assure himself that all gates are locked at the proper times, and that all keys of the Reformatory are kept in the authorised place or in the possession of the authorised officers.

13. The superintendent shall be responsible for communicating to the inmates the regulations in force which affect their conduct, and shall satisfy himself that they understand the rules and regulations to which they are required to conform, the privileges they may gain by industry and good conduct, and the consequences of idleness and misconduct.

14. The superintendent shall without delay call the attention of the medical officer to any inmate whose state of mind or body appears to require attention, and shall carry into effect the written directions of the medical officer respecting alterations of the discipline or treatment of any such inmate.

15. The superintendent shall notify to the medical officer, without delay, the illness of any inmate, and shall furnish to him daily a list of any inmates reported sick.

16. Upon the death of an inmate the superintendent shall give immediate notice thereof to the Secretary of State, to the coroner having jurisdiction, to the managers, and to the nearest relative of the deceased. If the coroner considers an inquest necessary every facility shall be afforded to his officer to make the necessary enquiries.

17. The superintendent shall report to the Secretary of State, in respect of any inquest on an inmate, the finding of the jury and the facts which are elicited at the inquest.

18. The superintendent shall, without delay, report to the inspector any case in which the medical officer is of opinion that the life of any inmate will be endangered by further detention, or that any sick inmate will not survive his sentence, or is totally and permanently unfit for Reformatory discipline; or any case in which the medical officer has reason to believe that the mind of any inmate is becoming impaired.

19. The superintendent shall carry into effect the written recommendation of the medical officer for the alteration of the discipline or treatment of any inmate, or for the supply of any additional articles to any inmate on medical grounds.

20. The superintendent shall carry into effect the written recommendation of the medical officer for separating from the other inmates any inmate labouring or suspected of labouring under any infectious, contagious, or mental disease; and shall immediately take such steps as may be necessary, to prevent the spread of any contagious or infectious disease.

21. If in any case the recommendations of the medical officer are not carried out, the superintendent shall report the circumstances to the inspector forthwith.

22. In any case in which the sickness of any inmate has, in the opinion of the medical officer assumed an aspect of danger, the superintendent shall inform the relatives.

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23. The superintendent shall pay attention to the ventilation, drainage, and sanitary condition of the Reformatory, and take such measures as may be necessary for their being maintained in perfect order.

24. The superintendent may examine all persons and vehicles going in or out of the Reformatory, and may exclude any person who refuses to be examined.

25. The superintendent may remove from the Reformatory any visitor to the Reformatory or to an inmate whose conduct is objectionable, recording the fact in his journal.

26. The superintendent shall take care that proper precautions against fire are adopted, and that the fire engine and other appliances for the extinction of fire are at all times kept in good order and ready for use. He shall take care that practical instructions are given as to the steps to be taken in case of fire, and that the officers and inmates are acquainted with their duties on such occasions.

27. The superintendent shall take care that every inmate having a complaint to make or request to prefer to him shall have ample facilities for doing so, and he shall redress any grievance, or take such steps as may seem necessary, recording the same in his journal.

28. The superintendent shall inform the managers or inspector of the desire of any inmate to see them.

29. The superintendent shall see that every inmate under punishment is visited during the day at intervals of not more than half an hour by the appointed officer.

30. The superintendent shall take care that no inmate is subjected to any punishment without the approval of the medical officer.

31. The superintendent may read every letter addressed to or written by an inmate. He shall use his discretion in communicating to or withholding from an inmate at any time the contents of any letter addressed to the inmate; but shall note in his journal every case in which he thinks it proper to withhold a letter. All letters so withheld shall be forwarded to the inspector.

32. The superintendent shall consider it to be one of his most important duties to assist in providing inmates with employment on their discharge, and to endeavour to prevent them from falling again under the influence of drink.

33. The superintendent should remember at all times that the good order and smooth working of the institution should be but a part of his care; the test of a well-managed institution is its success in leading to the permanent reformation of the inmates.

34. The superintendent shall enquire, with respect to every inmate, upon reception, whether he has any real or personal property more than sufficient to maintain his family; and shall lay the result of his enquiries before the managers and the Secretary of State.

The Medical Officer.

35. The medical officer shall have the general care of the health of the inmates, and shall report to the managers, and make known to the superintendent any circumstances connected with the Reformatory or the treatment of the inmates, which at any time appears to him to require consideration on medical grounds. These reports shall be shown to the inspector on his visit, and in cases of importance copies shall be transmitted by post to the inspector.

36. The medical officer shall visit the Reformatory at least once every day, and shall see every inmate at least twice a week, so as to ascertain his general state of health.

37. The medical officer shall every day see such inmates as complain of illness, reporting to the superintendent in writing their fitness or otherwise for labour. He shall daily visit the sick in the infirmary at such times as may be necessary. He shall attend at once on receiving information of the illness of any inmate.

38. The medical officer shall once every day, or oftener, visit every inmate under punishment, or under special discipline, or any other inmate to whom his attention is specially directed.

39. The medical officer shall examine every inmate on reception, and shall record his state of health and such facts connected therewith as may be directed by the Secretary of State.

40. The medical officer shall frequently examine the washing places, baths, and other provision for purposes of cleanliness or sanitation, and report at once to the superintendent any defect or insufficiency therein.

41. The medical officer shall frequently inspect the food of the inmates, cooked and uncooked, and shall report to the superintendent as to the quality of the provisions, and also as to sufficiency of clothing and bedding, and on any deficiency in the quantity or defect in the quality of the water, or on any other cause which may affect the health of the inmates.

42. The medical officer shall keep in the form prescribed an account of the state of every sick inmate, the name of his disease, a description of the medicines and diet, and any other treatment which he orders for such prisoner.

43. The medical officer shall also record such other matters connected with his duties as may be directed, or as he may deem desirable.

44. The medical officer shall keep according to the prescribed forms such statistical records and furnish such returns as may be directed relative to the health and medical treatment of the inmates, and to the sanitary condition of the buildings.

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45. The medical officer shall give notice to the superintendent when the sickness of any inmate appears to him to assume an aspect of danger; and in all cases where a fatal termination to the illness is likely to occur before the expiration of the term of detention, he shall make a special report to the superintendent with a view to its being transmitted to the inspector.

46. The medical officer shall report in writing to the superintendent the case of any inmate to which he thinks it necessary on medical grounds to draw attention, and shall make such recommendations as he deems needful for the alteration of the discipline or treatment of the inmate, or for the supply to him of additional articles.

47. The medical officer shall give directions in writing for separating from the other inmates any inmate labouring under any infectious, contagious, or mental disease, or suspected thereof, and shall immediately take such steps as may be necessary to prevent the spread of any contagious or infectious disease.

48. Before an inmate is placed in close confinement or is subjected to dietary punishment the medical officer shall examine him, and certify whether or not he is fit for the punishment.

49. In case of sickness, necessary engagement, or leave of absence, the medical officer shall appoint a substitute, approved of by the managers. The substitute shall undertake to carry out all the duties of the medical officer.

Officers of the Reformatory.

50. Every officer of an Inebriate Reformatory shall be a total abstainer from intoxicating liquors.

51. No officer shall at any time receive any money, fee, or gratuity of any kind for the admission of visitors to the Reformatory or to its inmates, or from or on behalf of an inmate, on any pretext whatever.

52. Female inmates shall in all cases be attended by female officers. A male officer shall not enter a Reformatory or division of a Reformatory appropriated to females, except on duty, nor unless accompanied by a female officer.

53. It shall be the duty of all officers to treat inmates with kindness and humanity, to listen patiently to and report their complaints or grievances, and at the same time to be firm in maintaining order and discipline, and enforcing complete observance of the regulations of the Reformatory. The great object of reclaiming the inmate should always be kept in view by all officers.

54. It shall be the duty of every officer to direct the attention of the superintendent to any inmate who appears to be out of health, although the inmate does not complain, or whose state of mind appears to be deserving of special notice and care, in order that the opinion and instructions of the medical officer may be taken on the case.

55. Officers shall at all times carefully watch the inmates in their various movements and employments, shall give the necessary directions thereon, and shall use the utmost alacrity and vigilance to promote industry, and to maintain order among them. They must remember that kindness and tact will be more effective than coercion in maintaining discipline and reforming character.

56. An officer shall not strike an inmate, unless compelled to do so in self-defence.

57. In any case in which the application of force to an inmate is needful, no more force than is necessary shall be used.

58. An officer shall not inflict any punishment or privation of any kind upon any inmate unless ordered by the superintendent.

59. Minor offences by officers shall be dealt with by the superintendent under the orders of the managers.

60. Any officer who

i. Mutinies or incites to mutiny,

ii. Violently assaults an inmate,

iii. Wilfully aids or permits an inmate to escape, or attempts to do so,

iv. Introduces, or attempts to introduce, intoxicating liquors into the Reformatory,

v. Is, even to the slightest extent, under the influence of drink whilst in the execution of his duty,

shall be liable on conviction to a fine not exceeding £20, or to be imprisoned with or without hard labour for a period not exceeding three months.

Admission, Discharge, and Removal.

61. Every inmate may be searched on admission and at such times subsequently as may be directed, and all prohibited articles shall be taken from him.

62. All money or other effects brought into the Reformatory by any inmate, or sent to the Reformatory for his use, which he is not allowed to retain, shall be placed in the custody of the superintendent, who shall keep an inventory of them in a separate book.

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63. Every inmate shall as soon as possible after his admission be separately examined by the medical officer, who shall record the state of health of the inmate, and such other particulars as may be directed by the Secretary of State.

64. Every inmate shall take a bath on reception, unless it is otherwise directed in any particular case by the superintendent or medical officer.

65. If any inmate is found to have any cutaneous disease, or to be infested with vermin, means shall be taken effectually to eradicate and destroy the same.

66. Chronic invalids, incapable of earning their own livelihood, and persons who require special care and constant medical attention, or persons suffering from any contagious or infectious disease, should not be eligible for an Inebriate Reformatory. Persons suffering from any organic disease in an advanced stage are not fit subjects for admission, and in all cases of pulmonary tuberculosis special precautions should be taken to prevent the communication of the disease to others.

67. Every inmate shall be examined by the medical officer before being removed to any other Reformatory, or being discharged. No inmate shall be removed to any other Reformatory unless the medical officer certifies that he is fit for removal; and no inmate labouring under any acute or dangerous illness shall be discharged at the expiration of his sentence, until, in the opinion of the medical officer, the discharge is safe, unless the inmate requires to be discharged.

68. Any inmate whose sentence will expire on any Sunday, Christmas Day, or Good Friday, shall be discharged on the day next preceding that Sunday, Christmas Day, or Good Friday.

69. Discharge on licence should be possible after nine months' treatment; and should be the usual practice at the end of 12 months. If an inmate is not licensed at the end of a year the matter should be reported to the Secretary of State, and if still in the Reformatory after 18 months, there should be a detailed report on the case, in order that it may be decided whether the inmate should be discharged on the ground that no cure can reasonably be expected, or whether he should be removed to another Reformatory, or otherwise dealt with. A temporary licence should be given whenever it is thought advisable to allow any inmate to leave the Reformatory for more than a few hours, either on business or as part of his probationary treatment.

70. A form of licence is appended to these regulations. Licences should be granted by one or more of the managers on the recommendation of the superintendent and medical officer.

71. A copy of every licence should be sent to the police of the district in which the inmate is about to reside.

Food.

72. The inmates shall be supplied with plain wholesome food, according to a dietary to be approved by the Secretary of State; and no substantial alterations in the dietary shall be made without previous notice to the inspector. A copy of the dietary shall be hung in the dining-room or other public place; it shall be carefully adhered to, and all deviations from it recorded.

73. No intoxicating liquor or drug of any kind shall be admitted into the Reformatory under any pretext whatever, except in pursuance of a written order of the medical officer specifying the quantity to be admitted, and the name of the person for whose use it is intended. This rule shall not apply to any stock of spirituous liquors kept in the Reformatory for the use of the infirmary, and under the control of the medical officer.

74. The inmates of the Reformatory shall mess together, and the food should be carved in the room, and should not be weighed out to each man. An inmate who has any complaint to make regarding the diet furnished to him must make his request to the officer deputed for that purpose as soon as possible after the diet is handed to him.

75. Any special addition to the food in the diet scale may, in the case of an inmate not being a patient in the infirmary, be made only with the permission of the medical officer.

Clothing.

76. Each inmate shall be provided with a complete and suitable dress, and shall be required to wear it. It is, however, not desirable to enforce strict uniformity, and unless there are special reasons to the contrary an inmate should be allowed to use his own clothes, if he desires.

77. Every inmate shall be required to keep himself clean and decent in his person, and to conform to such rules as may be laid down for that purpose.

78. Inmates shall be required to take baths at regular intervals unless the medical officer otherwise directs.

79. Each inmate shall keep his room, utensils, books, and other articles issued for his use, and his clothing and bedding clean and neatly arranged. Any inmate may, however, if and on such conditions as the managers may approve, employ another inmate or a servant to relieve him from the performance of any unaccustomed tasks or offices.

80. Every inmate shall be supplied with sufficient and clean bedding. Additional bedding shall be issued during severe weather, or, in special cases, as the medical officer shall deem requisite.

81. An inmate shall not receive any clothing, bedding, or necessaries other than the allowance, except with the permission of the medical officer.

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Employment of Inmates.

82. A time-table showing the hours of rising, work, meals, recreation, retiring, etc., etc., shall be drawn up, and be approved by the Secretary of State, and shall be exhibited in conspicuous places and strictly adhered to on all occasions. Occasional variations from it shall be allowed only subject to the consent of the inspector.

83. On Sunday, Christmas Day, Good Friday, and Fast or Thanksgiving Days, the labour of an inmate shall be confined to what is strictly necessary for the service of the Reformatory.

84. An inmate who is a Jew shall not be compelled to labour on his Sabbath or on such days of Festival as may be prescribed.

85. Every inmate should be encouraged to exercise his faculties and employ his time as remuneratively as possible. He should, therefore, be employed in that kind of work for which his training and capacity suit him, no matter what that work may be, provided it can be executed and supervised in a Reformatory without great inconvenience. Inmates accustomed to work of a superior kind should, whenever practicable, be encouraged to follow their ordinary vocations, and any money earned by the sale of their work should, after deducting a reasonable sum for their maintenance, be available for the support of their families, or for other suitable use. An accurate account of the earnings should be kept, and assignment of the sums to be allotted (1) for maintenance; (2) to the inmate for his own use; (3) to the inmate's family, or otherwise, should be made in each case, and notified to the inmate, who should have a right of appeal to the Secretary of State. The scheme should specify what comforts (*e.g.*, tobacco, extra clothes, books, etc.) may be purchased by an inmate from that part of the earnings assigned to himself.

86. Chess, cards, and other games shall be provided for use in the day-room, to the satisfaction of the inspector.

87. Daily newspapers and magazines shall be placed in the day-room for the use of the inmates.

88. Drill and outdoor games shall be organised, and entertainments, such as lectures and concerts, shall be arranged from time to time.

89. A good supply of books shall be kept for the use of the inmates. Inmates shall be allowed to receive books or periodicals from their friends, if the superintendent is satisfied that they are of an unobjectionable nature.

90. Smoking shall be allowed in the day-room, or exercise yard and grounds, during recreation hours, under regulations which shall be prescribed by the managers.

91. Such provision shall be made for the instruction of the inmates as the inspector may think necessary, having regard to the circumstances of the Reformatory and the class of the inmates.

Visits and Letters.

92. Visits to inmates shall be made in sight of an officer, but not within hearing; but the superintendent shall have power if he sees reason for so doing to order the interview to be within hearing of the officer.

93. If there are reasonable grounds for suspecting that any person who comes to the Reformatory for the purpose of seeing an inmate, is exercising a bad influence on him, or brings in or takes out any article for an improper purpose, or contrary to the rules, or that his conduct may tend to subvert the discipline or good order of the Reformatory, the superintendent may suspend his visit and remove him from the premises, duly recording the fact in his journal.

94. The superintendent shall have power to give permission for visits on Sunday, when he is satisfied that it is inconvenient or impossible for friends to come at any other time.

95. Facilities shall be allowed to inmates to see solicitors, officers of the law, or other persons in connection with business transactions.

96. The managers may, when the circumstances of the Reformatory allow of it, permit female inmates to have their infant children with them.

97. Every letter to or from an inmate may be read by the superintendent; and if the contents are objectionable, it shall not be forwarded. Any letter, even if not in itself objectionable, may be stopped by the superintendent if addressed to or received from a person with whom it is undesirable that intercourse should be maintained. Any letter which may be stopped in accordance with this rule shall at once be forwarded to the inspector, with the reasons for suppressing it. Letters addressed to the Secretary of State or the inspector shall be forwarded unopened.

98. Inmates, unless deprived of the privileges for misconduct, shall be allowed to receive and write letters as often as they desire, and to receive a visit weekly; and the managers shall be empowered to allow additional visits whenever they consider it desirable.

Religious Observances.

99. Morning prayers shall be read daily.

100. Adequate arrangements shall be made for the holding of religious services on Sundays, Christmas Day, and Good Friday, and the managers shall, as far as is practicable, arrange for inmates of any particular religious persuasion to receive religious instruction from ministers of that persuasion, or such other responsible persons as may be delegated by those ministers.

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101. Inmates shall attend prayers or religious services whenever performed, unless allowed by the superintendent to be absent for sufficient reason, but no inmate shall be compelled to attend any religious service held or performed, or any religious instruction given, by the minister or religious instructor of a church or persuasion to which he does not belong.

Offences and Punishments.

102. No punishment or privation of any kind shall be awarded by any officer of the Reformatory except the superintendent, or, in his absence, the officer appointed to act for him. No inmate shall be punished until he has had an opportunity of hearing the charges and evidence against him, and of making his defence. A list of the punishments which the managers propose to adopt shall be submitted to the Secretary of State for approval.

103. An inmate shall be guilty of an offence against discipline if he—

(1.) Disobeys any order of the superintendent or of any other officer, or any regulation of the Reformatory.

(2.) Treats with disrespect any officer of the Reformatory.

(3.) Is idle, careless, or negligent at work, or refuses to work.

(4.) Is absent without leave from divine service, or prayers.

(5.) Behaves irreverently at divine service or prayers.

(6.) Swears, curses, or uses any abusive, insolent, threatening, or other improper language.

(7.) Is indecent in language, act, or gesture.

(8.) Makes any objectionable noise, gives any unnecessary trouble, or makes repeated groundless complaints.

(9.) In any way disfigures or injures any part of the Reformatory, or any article to which he may have access.

(10.) Commits any nuisance.

(11.) Has in his room or possession any article he is not allowed to have.

(12.) In any other way offends against good order and discipline.

(13.) Attempts to do any of the foregoing things.

The foregoing offences shall be punishable by dietary or other restrictions or deprivation of privileges, as set out in the rules for each Reformatory.

104. If any inmate is charged with any serious or repeated offence for which the punishment the superintendent is authorised to inflict is deemed insufficient, or is charged with any offences with the aggravations mentioned in this rule, the superintendent shall, without loss of time, report the same to the managers. The managers shall consider whether the offences can be adequately punished by severer or longer continued restrictions in the Reformatory; or whether the offender should be brought before a Court of Summary Jurisdiction, and shall act accordingly. They may in lieu of or in addition to any punishment apply to the Secretary of State to transfer the inmate to another certified or a State Reformatory. The offences referred to above are—

(1.) Mutiny or incitement to mutiny.

(2.) Personal violence to any officer or servant, or to a fellow inmate.

(3.) Grossly offensive or threatening language to any officer or servant.

(4.) Wilfully or wantonly breaking the windows, or otherwise destroying the property of the Reformatory.

(5.) When under punishment, wilfully making a disturbance tending to interrupt the order and discipline of the Reformatory.

(6.) Any other act of gross misconduct or insubordination requiring to be suppressed by extraordinary means.

(7.) Escaping or attempting to escape from the Reformatory, or aiding or abetting another to escape.

(8.) Introducing intoxicating liquors or drugs into the Reformatory.

(9.) Entering a public house, or taking any intoxicating liquor.

An inmate shall be liable on conviction of any of the foregoing offences to a fine not exceeding 20*l.*, or to imprisonment, with or without hard labour, for not exceeding three months.

105. The superintendent shall enter in the punishment book a statement of the nature of any offence punished, with the name of the offender, the date of the offence, and the punishment inflicted, and the record shall be submitted to the inspector for review at his next visit to the Reformatory.

106. Dietary punishment shall not be inflicted on any inmate, nor shall he be placed in close confinement, unless the medical officer has certified that the inmate is in a fit condition of health to undergo the punishment. No punishment shall be inflicted for idleness, unless the inmate is certified by the medical officer to have been capable of performing the work allotted to him.

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107. The strait jacket shall be the only mechanical means of restraint used in the Reformatory; and it shall be used only to prevent an inmate from injuring himself or others. The particulars of every case shall be forthwith entered in the superintendent's journal, and notice forthwith given thereof to one of the managers; and no inmate shall be kept under mechanical restraint without the approval of the medical officer (except in cases of urgent need), nor for longer than the medical officer thinks necessary. When so restrained an inmate shall be seen by an officer at least every half hour.

Approved,

M. W. RIDLEY,

One of Her Majesty's Principal Secretaries of State.

Whitehall,
7th December, 1898.

APPENDIX I.

APPLICATIONS FOR CERTIFICATES.

All applications for certificates should be addressed to the Under Secretary of State, Home Office, Whitehall, S.W. and should give the following particulars with respect to the proposed institution :—

1. The name proposed for the reformatory.

2. The names of the managers, the corresponding secretary, and the responsible treasurer.

3. An exact description and plan of the site.

The land to be acquired for a reformatory should be of a healthy character, at some distance from large centres of population, by preference on a gravelly, chalky, or rocky subsoil, offering facilities for adequate drainage. The quantity of land attached to a reformatory for males should allow not less than one acre for every ten patients, so as to give ample scope for out-door employment, exercise, and recreation Not less than half this quantity should be provided in the case of reformatories for females.

4. Plans of the buildings, showing the area, height, and arrangement of the rooms, the external offices and conveniences attached to the buildings, and all necessary details as to safe custody, water supply and baths, fire escapes, drainage, ventilation, and sanitary arrangements.

The plans must exhibit :—

(*a*) Adequate and separate accommodation for dormitories, day rooms, and workshops.

(*b*.) Proper infirmary accommodation for the treatment of cases of illness.

(*c*.) The associated dormitories for healthy inmates should allow a floor space, when open, of 50 square feet to each bed, with a height of 12 feet. If divided into cubicles, there should be a floor space of 60 feet. Single rooms should have an area not less than 63 feet. The space in the dormitories and single rooms of infirmaries should be not less than one-third larger than these dimensions. Associated bedrooms should contain at least three beds. Separate sleeping rooms should be provided for all inmates whom it is not desirable for medical or special reasons to place in association. The system of cubicles is undesirable.

N.B. 3. & 4.—The site, construction, and arrangements of every reformatory must be approved by the Secretary of State before a certificate can be granted. It is therefore very desirable that his approval should be obtained in every case before money is spent or contracts entered into for a new institution.

5. The number of inmates whom it is proposed to receive.

This should not be less than 25, and if all the 25 are not cases under the Act, the Secretary of State must be satisfied that adequate arrangements are made for the maintenance of the voluntary cases, either from local or charitable funds.

6. The sex of the inmates whom it is proposed to receive.

Men and women will not be allowed to be received in the same establishment unless there be absolute separation of the buildings and grounds used by them, whether for residence, work, or recreation.

7. It should be stated whether it is proposed to receive inmates of certain classes only, *e.g.*, of specified religious denominations, or those committed from specified localities.

8. The rules proposed for the management of the institution.

These rules must receive the approval of the Secretary of State before inmates are received; and the payment of the Treasury contribution will be contingent on their observance. They should incorporate the Regulations issued by the Secretary of State, or should be based on those regulations, with such modifications as may be rendered necessary by the special requirements of the proposed institution.

9. The names of the superintendent and medical officer, and particulars of the staff which it is proposed to employ.

13. A statement respecting the work upon which the inmates would be employed, and the arrangements for affording them industrial training.

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APPENDIX II.—

PARTICULARS

NAME.	Date of Admission.	Age.	Nationality.	Religion.	Education.	Previous Residence.	Occupation.	Living with Family.			Living Alone.			Relatives Intemperate.							
								Married.	Single.	Widower or Widow.	Married.	Single.	Widower or Widow.	Father.	Mother.	Brother.	Sister.	Grandfather.	Grandmother.	Uncles.	Aunts.

RECORD OF

Date.	Condition of Patient.	Treatment.
First Day		
Second Day		
Third Day		

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SPECIMEN OF CASE BOOK.

OF CASE.

Relatives Insane.	Intemperance Regular or Periodical.	Frequency of Periods.	Duration of Drinking Habits.		Violent, Cheerful, or Gloomy, when Intoxicated.	Kind of Liquor Drunk.	Ordinary Habits, Social or Solitary.	Ever been in Insane or Inebriate Asylum.	Tobacco.	Opium or other Drugs.	Sleep.	Had Delirium Tremens? How Often?	Exciting Cause.	Complicating Disease?	General Health.
			Moderate Drinking.	Excessive Drinking.											

TREATMENT.

Remarks.	Restraint or Coercion.	Result.

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APPENDIX III.

CERTIFIED INEBRIATE REFORMATORIES.

Form of Licence.

Order of Licence under the Inebriates Act, 1898.

_____ Inebriate Reformatory.

189

Having received a written undertaking from of , that he will take into his care , who was sentenced at , on , to be kept in an Inebriate Reformatory for the term of

We, being two of the managers, hereby grant to the said a Licence to be at large from the day of his Liberation under this Order, unless the said Licence shall, before the expiration of the said term, be revoked.

This Licence is given subject to the Conditions set out below upon the breach of any of which it will be liable to be revoked.

_____ } Managers of the

_____ } Inebriate Reformatory.

Conditions.

1. The said shall abstain entirely from intoxicating drink.

2. The said shall report monthly by letter to the Superintendent of the Reformatory, unless excused from so doing, as to the conduct of the said , and shall immediately notify any breach of the above condition.

3. On notice of the revocation of this Licence, the Licensee shall forthwith return to the Reformatory.

4. [Any other condition which under the circumstances may seem desirable to the Managers.]

APPENDIX IV.

A Model Dietary for Certified Reformatories.

Breakfast :—

Daily—Cocoa, with bread and butter.

Dinner :—

Sunday—Bread, potatoes, cooked meat (preserved by heat), fruit or currant pudding.

Monday—Bread, potatoes, fat bacon and beans, rice pudding.

Tuesday—Bread, potatoes, soup, cheese.

Wednesday—Bread, potatoes, cooked meat (beef), currant pudding.

Thursday—Bread, potatoes, soup, cheese.

Friday—Bread, potatoes, pork, pease pudding.

Saturday—Bread, potatoes, cooked meat (mutton), rice or sago pudding.

Supper and tea :—

Daily—Tea, with bread and butter.

Oatmeal gruel at bed-time to those who wish it.

A fish dinner may occasionally be substituted for the Friday dinner.

Meat pie may occasionally be substituted for the Saturday dinner.

Corned beef may occasionally be substituted for pork or bacon.

Cabbage, French beans, broad beans, vegetable marrows, carrots, parsnips, onions, and such like vegetables (to be grown in the garden) to be given *frequently* when in season, to the amount of 4 oz. weighed after cooking.

Bread to be unlimited.

Potatoes, 12 oz. per diet.

Beans, 12 oz. per diet.

Cooked meat, 5 oz. per diet.

Bacon, 2 oz. per diet.

Soup, one day, containing 4 oz. clod (or shoulder), cheek, neck, leg, or shin of beef; 4 oz. split peas; 2 oz. fresh vegetables; ½ oz. of onions; pepper and salt.

Soup, one day, containing 10 oz. meat (uncooked), 1½ oz. barley, 4 oz. vegetables, ½ oz. flour.

Pork, 4 oz. per diet.

Butter, 1 oz. per day.

Tea—Ingredients, ⅛ oz. tea, 2 oz. milk, and ¾ oz. sugar (Demerara or loaf sugar).

Cocoa—¾ oz. Admiralty cocoa, 2 oz. milk, and ¾ oz. sugar (Demerara).

Gruel—2 oz. Scotch (coarse) oatmeal to the pint.

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DIET FOR ILL-CONDUCTED INMATES.

Breakfast :—Bread, 8 oz.

Dinner :—1 pint stirabout, containing 2 oz. oatmeal and 2 oz. Indian meal, with salt. Potatoes, 8 oz.

Supper :—Bread, 8 oz.

This diet to be limited, in the first place to three days; after that, the ordinary diet for one day before its repetition when it is again to be limited to three days, and a second interval on ordinary diet of one day to elapse before it is again repeated. The entire period, including intervals, for which any single term of this diet may be ordered, is not to exceed 24 days.

APPENDIX V.

A MODEL TIME TABLE FOR CERTIFIED REFORMATORIES.

Rise at	6 a.m.
Breakfast	7 „
Physical Drill	
Chapel	8.15 „
Work	8.30 „ till 11.30 a.m., Compulsory.
Dinner	12 noon.
Work	1.30 p.m. till 4.30 p.m., Compulsory.
Tea	5 „
Recreation	till bedtime.

Inmates to go to bed at 9.30 p.m. Lights out in day-room.

All lights out at 10 p.m.

APPENDIX C.

CERTIFIED INEBRIATE REFORMATORIES.

REGISTER OF ADMISSIONS AND DISCHARGES.

Number in order of Admission.	Name.	Offence.	Court of Committal.	Date of Admission.	Sentence.	Particulars concerning absences from Reformatory (on licence or otherwise) and final discharge.	RESULT. Two entries should be made, one 3 months, and a second 12 months after discharge from the Reformatory.

CERTIFIED INEBRIATE REFORMATORIES.

RECORD OF PUNISHMENTS.

Reference Number.	Name.	Number on Register.	Offence.		Punishment.	Manager's Initials.	Reference to previous Punishments.
			Date.	Nature.			

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LIST OF FORMS IN USE UNDER THE INEBRIATES ACT, 1898.

(61 & 62 Vict., Cap. 60.)

Managers.

1. Rules as to Applications for Certificates.
2. Yearly Abstract of Receipts and Expenditure.
3. Changes in Staff of Certified Inebriate Reformatory.
4. Quarterly Claim for Treasury Grant.

4A. „ „ „ (Concluding Sheet with Instructions).

5. Report to the Secretary of State of Result of Application to a County Court Judge under Section 12.
6. Removal Expenses incurred by direction of the Secretary of State.

Superintendent.

7. Report of Reception with Copy Commitment.
8. Daily List of Sick Inmates.
9. Notice of Death (Coroner).
10. „ „ (Managers).
11. „ „ (Inspector).
12. „ „ (Next of Kin).
13. Result of Inquest.
14. Report by Medical Officer to Superintendent of Dangerous Illness of Inmate.
15. Report by Superintendent to Inspector of Dangerous Illness of Inmate.
16. Report by Superintendent to Relatives of Dangerous Illness of Inmate.
17. Segregation of Inmate—Medical Officer's Report.
18. Fitness of Inmate for Work—Medical Officer's Certificate.
19. „ „ Punishment „ „
20. Medical Officer's Recommendation for Special Treatment.
21. Wish of Inmate to see Inspector.
22. Suppressed Letters.
23. Report to Managers—Inmate's Property.
24. „ Secretary of State—Inmate's Property.
25. Monthly Incidental Return.
26. Medical Officer's Report of Examination on Reception.
27. Infirmary Record.
28. Notification of Licence to be at large (Managers).
29. Notification of Absconding, Committal to Prison, or Removal to Lunatic Asylum (Superintendent).
30. History of Inmate before Reception.
31. Claim for Maintenance in Asylum (Accounts Branch Form).
32. Return of Licence Holder to Reformatory on Revocation.

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APPENDIX D.

INEBRIATES ACT, 1898.

CERTIFIED INEBRIATE REFORMATORIES.

Local Authorities desirous of exercising their powers under section 9 of the above Act, are experiencing considerable difficulty in deciding the character of institution calculated to meet their requirements.

This is perfectly natural in view of the novel procedure, want of knowledge and experience, and complete absence of any existing institution capable of serving as a guide.

Under these circumstances it has been suggested, with a view if possible of lessening the difficulty, that a rough idea should be presented to serve as a basis for consideration.

The accompanying sketch does not in any respect profess to be a model plan, or designed to supply every possible requirement, but is issued simply as a suggestion, to be modified or not according to desire or at the dictation of experience.

Site and Surroundings.

Before passing to consideration of the building a few broad indications are perhaps desirable concerning the character of the site and surroundings.

Land should be chosen in view of suitability for agricultural or market gardening occupations, and should be of a healthy character, having preferably a gravelly, chalky, or rocky substratum.

Where selection is possible preference should be given to fairly elevated positions, whilst the advantage to inmates of bright and generally pleasant surroundings should not be ignored.

The actual site of the building should always be on rising ground, to afford facility for adequate drainage.

The Home Office requirement of land is one acre for every 10 males or 20 females, but, especially in the case of the former, where land is obtainable at low rates, it will be found a distinct advantage to calculate acreage on a more liberal basis, to afford ample scope for out-door employment, exercise, and recreation.

A Reformatory should always be situated at some distance from large centres of population, but at the same time within easy reach of railway communication with the district it is intended to serve.

The Building.

Safe custody is a subject of paramount importance, and the Secretary of State will require evidence that due arrangements are provided to prevent escape of inmates. The majority of patients will undoubtedly be amenable to discipline, but a certain percentage will require the strictest supervision, at any rate for some considerable period. It is impossible to discriminate at sight between these characters, and therefore it becomes absolutely necessary to treat every inmate as if he or she would escape at the first available opportunity, until otherwise proved by study of each individual case.

With regard to provision for safe custody there are two alternatives.

1. Fencing in the entire property, or
2. A portion only, including the building ; and arranging for external labour under supervision.

This subject has received careful consideration, and the second method has been chosen (for the purpose of this plan) for the following reasons :—

1. Fencing in the entire property with an unclimbable boundary would either result in undue restriction of area or, on the other hand, necessitate enormous expense.
2. Perfect supervision would be almost impossible in the case of patients roaming at will over large areas.
3. If safe custody measures consisted solely of a wall round the whole property, the only means of effectually controlling persons known to be contemplating escape would be confinement within the building itself, with consequent galling restraint and no possibility of anything like adequate open air exercise.

Only the building proper (which is presumably situated about the centre of the property) is shown on this plan.

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It is designed to indicate a minimum of outlets, easily guarded. The actual living accommodation forms the greater part of the boundary, thus saving expense of additional walling, and at the same time presenting the least objectionable but most effectual of barriers.

All outside windows should consist of iron frames with a restricted opening at the top for ventilation. Internal provision for work and exercise is provided, so that any patients, unfit to be trusted amongst outside labour batches, can be wholly retained without damage to health and without entailing excessive supervision. Under this arrangement also, when work is done and patients are off duty, they can be allowed to occupy the recreation room or roam about the quadrangle at pleasure, engage in amusements, or otherwise employ themselves without constant watching, the superintendent being at the same time certain of their safety.

It is unnecessary to describe the plan in detail; the intention of each part is sufficiently obvious and plainly indicated.

Some of the rooms might with advantage be somewhat increased in size, but attention has been paid to the question of cost and reduction to a workable minimum has been applied to points where restriction would not mean impairment of efficiency.

Three isolation rooms are shown, but it would be well if one of these were built throughout in brick-work with door opening outwards, domed roof, and inaccessible windows, to serve as punishment cell for unruly or unmanageable cases.

The value of the observation room situated between the two dormitories is obvious, affording possibility of one night attendant being sufficient to control the whole number of patients when in bed, communication, of course, existing with superintendent's and attendants' quarters for use should necessity arise.

In the day time also, when considered advisable, the same room is available for complete supervision of quadrangle.

Lavatories, and sanitary arrangement generally, whenever possible, are placed outside the main walls with adequate cross ventilation. In this hypothetical stage it is impossible to enter into the direction of sewers or treatment of sewage.

The Workshop accommodation as shown is not supposed to provide for the whole reformatory. It is hoped that some regular industry will be associated with each institution, a large number of the well-behaved being taken, under proper supervision, during working hours, to sheds or buildings elsewhere specially erected (possibly by patients themselves) and fitted for the purpose of the chosen employment. Workshops as shown, however, will be of great value in providing space for special occupation according to the training and capacity of inmates, each patient being, whenever possible, encouraged to follow his own calling, a course probably proving of the greatest financial advantage to himself and the institution. As previously indicated, these workshops will also be necessary for use of cases confined entirely within the institution gates.

For effective ventilation some form of approved extraction apparatus will probably be found necessary placed along the ridge throughout the building, and for safety in heating, and better control of temperature, it will be advisable for the whole to be heated with water pipes from a central boiler.

These are some of the main points; minutiæ and details will require special consideration as they arise.

Probable Cost.

For the purposes of this Act the Local Government Board will probably permit Councils to borrow money—

1. For the purchase of land, repayable in 30 years;
2. For building, repayable in 30 years; and
3. Furniture in 10 years.

The following figures have been arrived at on this basis.

Many Councils may be able to borrow for some purposes at 3 per cent. To be on the safe side, however, the following estimates are calculated at the rate of 3½:—

Estimate of Reformatory for 50 Inmates (as Plan).

	£	s.	d.	
Statutory requirement 5 acres of land at £100 per acre, amount of purchase and interest, repayable in 30 years.	27	3	9	per annum.
Estimate of cost of building £6,000, repayable in 30 years, capital and interest.	326	5	0	„ „
Estimate for furniture £500, repayable in ten years, capital and interest ...	60	2	4¾	„ „
	£413	11	1¾	

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For the first 10 years of payment the three items (land, building, and furniture) will run concurrently, the subsequent 20 years land and building repayments only. The exact amounts would therefore be as follows :—

	£	s.	d.	
For first 10 year period	413	11	1¾	per annum.
Subsequent 20 year period	353	8	9	„ „

The Government estimate of institution expenses (including interest on foundation expenditure) is 16*s.* per head per week ; on the basis of this estimate 16*s.* is given as a grant for Criminal Cases committed under Section 1 of the Act, the Government accepting sole charge of that class.

Deducting 2*s.* per head per week as a rough estimate of interest on foundation expenditure, the remaining liabilities for repairs, maintenance, supervision, &c., should not exceed 14*s.* per head per week.

Of this amount the Government provides 10*s.* 6*d.*, leaving local authorities to find the balance charge of 3*s.* 6*d.* per head per week, or £455 per annum, for the maintenance of an institution of 50 inmates.

No allowance is here made for labour of inmates. With judicious management, and proper organisation of labour, this sum of £455 should be considerably reduced.

In the absence of experience it is impossible to say what reduction may be anticipated.

Inebriates have no parallel with any other class for which institutions are required, and it would be well to bear in mind that the large majority of patients, after about a month's residence, will be in perfect physical condition and fit to undertake any ordinary occupation.

From a curative point of view organisation of regular labour is essential, and such labour ought to bear financial value in the interests of both patient and institution.

R. W. BRANTHWAITE,

Inspector of Inebriate Reformatories.

Home Office,

10th July, 1899.

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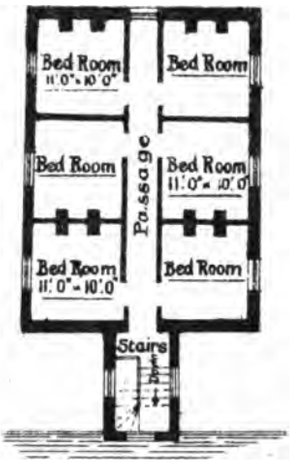

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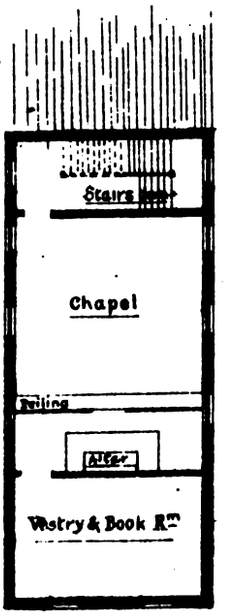

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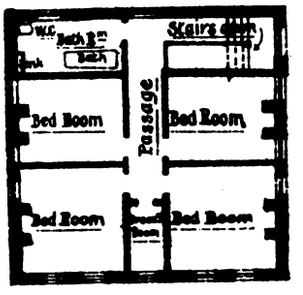

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